

IN THE
United States Court of Appeals
FOR THE NINTH CIRCUIT

MONOLITH PORTLAND MIDWEST
COMPANY, a Nevada Corporation

Appellant,

v.

KAISER ALUMINUM & CHEMICAL
CORPORATION, KAISER ALUMINUM
& CHEMICAL SALES, INC., GEORGE
C. DAVIS AND PALMER FORD,

Appellees.

VOLUME II
APPENDIX TO APPELLANT'S BRIEF

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Appendix, Part 1

LIST OF EXHIBITS

Prior to trial below, both parties were required to submit lists of exhibits with proposed numbers or letters for identification (see Pre-Trial Conference Order, page 61, Supplemental Record, page 94). These lists of exhibits are of record (R. 4710-4793 and R. 1598-1626). In view of the pretrial identification of all exhibits expected to be used at that time, many such exhibits were not used in the trial of the action below. Accordingly, set forth below are lists of appellant's and appellees' exhibits which were used in the trial of the action along with transcript page references to the place of identification of only those exhibits not earlier identified in the exhibit lists, and along with transcript page references to the place of admission or rejection of those exhibits tendered.

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corres- ponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
1	PS			5404
2	V			5405
3	U			5405
4				5444
5				5444
7				5713
9				5713
10				5484
14				5407
16				3712
17				8223
19	K			5430
20				5430
22				3711
24			5434	
31				6514
36				5488
39				5488
40				5488
42				5489
54				5492
55				5492
56				5492
57				5492
58				5492
59				5492
60				5492
61				5492
62				5492
65				1426

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corresponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
66				1426
67				1426
68				1426
69				1426
70				1426
71				5036
72				5311
73				5493
75			12199	
83				5684
84				5684
85				12211
99			5496	
100			5497	
101	BW			4049
102			3184	
103	CJ		3185	
105	CV			7209
106	DA			984
107	DB			2130
109	DC			3169
110	DG			1245
111	DI			1245
112	DK			3169
113	DL			3169
114	DM			1006
115	DN			12146
116	DO			3169
117	DP			2128
118	DQ			1245
119	DS			1245

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corres- ponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
120	DT			1245
121	DV			3169
122	DW			3169
123	DX			4087
124				1245
125				5499
126(669)	DY			1245
127	DZ			1245
128	EB			3169
129	EC			4099
130	ED			3169
131	EE			5156
132				1245
133				1245
134				1245
135	EF			3169
136	EJ			3169
137	EK			11855
138	EL			12149
139	EM			12149
141	EP			1045
142	EQ and EU			4079
143	ER			4079
144				5507
145	ET			1046
146				1047
147	EV			3169
148	EY			12149
149	FB			3824
153				5511
154				3825

LIST OF APPELLANT'S EXHIBITS

Appellant's Exhibits	Appellees' Corresponding Exhibits	For Identification	Rejected	Admitted In Evidence
155				1048
156	FF			5512
157	FG			5517
158	FH			4099
159	FI			5524
160	FJ			5766
162	FL			5525
165	FM			5096
166				5525
167	FN			4096
169	FP			3169
170				3169
171	FQ			3169
172	FR			3169, 5062
173				3169
179				3848
181				3169
183	FZ			5062
184				3169
185	GB			5528
186	GA			5062
187	GD			12159
190	GH			3169
191				3169
192	GI			2118, 3169
193	GJ			5529
194	GIX			5062
195				3169
196	GM			3169

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corresponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
197	GP			3169
198	GN and GO			3169
199				3169
200	GQ			5530
201	GR			1604, 3169
203				3169
204				2216
204-A				3856
205				5530
207	HF			5533
208	HG			5062
209				3169
210				3169
211				5535
213	HO			3169
214			5540	
215			5540	
220	HT			5548
221			5553	
222	HZ			5557
223	HY			5062
225	IJ			3169
226	IE			3169
227				3169
228				3169
229	IH			3169
231	IL			3169
232				2272
232-A	IR			2273

LIST OF APPELLANT'S EXHIBITS

Appellant's Exhibits	Appellees' Corresponding Exhibits	For Identification	Rejected	Admitted In Evidence
232-B	IR	2273		2273
235	IY			3169
238				5559
239				3169, 5062
240	IZ			3169
241				3169
242	JD			3169
244				3169
245				3169
246				3169
247				5563
248				2216
250			5570	
252				5567
254				7209
255				3170
256				5062
257				5062
258				3170
259				3170
261	JV			5567
264			5575	
265	JX			2216
266			5577	
267				3170
268				3170
270				3170
271				5567
272			5579	
273				3170

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corres- ponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
274			5583	
276	JZ			3170
277			5585	
278	KA			2215
280				5567
282				5567
283				5567
284	KF			3170
286			5588	
289			5603	
290				12248
293	KI			3170
295				3170
296	KJ			3170
297				5616
300			5616	
301	KR			3170
304				3170
308				5619
316				3170
317	LP			3170
318	LP			3170
319				3170
320				5620
322	MB			3170
325			5634	
330				5635
331	MI			5567
332				5062
334				3170
338	MQ			3170

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corresponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
339, 341				5567
343				3911
344				3912
347, 348			5638	
349	MX			5567
352	NB			3170
369, 380			5640	
382				5062
383				5642
384			5644	
389				12251
390, 393				3170
395				3170
403			5645	
404			5646	
406				3667
409			5648	
410			5649	
411				5650
412				5062
418			5651	
419			5651	
421			5652	
424			5652	
442	NS			3170
455				5658
459	NT			3170
476				5062
479				3170
496				5659

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corres- ponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
498				5567
506				12252
507				5660
508				5567
510			5661	
530			5687	
533				6494
537				6494
539(1010)				5685
542		5688		
543			5689	
545				1275, 4372
545-A		4268	4260	
551				4553
552				1278
585				5944
587-A				5693
587-B				5693
587-C				5693
587-D				5693
588-A		2473		5694
588-B		2473		5694
588-C		2474		5694
588-D		2474		5694
588-E		2475		5694
588-F		2476		5694
588-G		2476		5694
588-H		2476		5694
588-I		2477		5694
588-J		2477		5694

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corresponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
595				5694
596				2460
597				2461
599-A		3438		3449
599-B		3438		3449
599-C		3438		3449
599-D		3438		3449
599-E				3449
599-F				3449
603			12255	
608			5704	
609	FE			8874
654	LO			10627
666	CZ			971
667 and 113				3169
671				2292
678				11400
679	FA			1385
680				10229
681	GK			2016
686	LD			9035
687	LF			9035
689	LG			9066
690				12255
692	LS			8874
694	PR			9397
696				10086
697				10086
698				12255
699				12255

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corres- ponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
700				11400
701				11400
702				12255
703				11400
704				10086
705				11400
706				12255
707				12255
718			12259	
719				2292
736	HR			8874
737	HQ			8873
738	HP			8872
742	GL			1826
743	GJX			8874
744	GC			1782
758	KX			2292
763	KQ			9035
765	KP			8896
766	KO-1	8847		11400
	KO-2	8847		8893
773	JU			9553
774				10086
775				10086
776	JP			9397
782	GS			2016
791				12260
792				12260
793				12260
800				12260

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corres- ponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
801				9553
802				9553
803				9553
804				9553
810	PP			9783
815	MH			9553
817	LU and LV			5707
819	NW			9553
821			12260	
822	NP			9397
823	NQ			9553
824	NR			9553
831	NU			9553
835	NV			9553
840	OC			9553
842				12261
847	OF			9553
850	OH			9553
852	OI			9397
854	OK			9553
855	OP			9553
856	OT			9553
860	OZ			9553
861	PA			9553
862	PC			9553
864	PE			9553
866	PG			9553
873	PL			9553
876				12264
880	NN			9397

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corresponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
883	NO			9397
891	NX			9553
893	OA			9553
898				2292
907	ON			9553
914				11400
920				9278,
				11400
923				9397,
				9553
926	NL			9397
933			12270	9553
945				12524
950	GV			2136
951	GW			2129
952	GY			2119
953	HH			1765
955	HK			2257
956	IF			2258
957	IK			2260
958	IM			2261
959	IP			2262
960	IW			2274
962	IX			2274
963	JB			2275
964	JK			2275
965	JL			2277
966	JM			2279
967	JN			2278
968	JO			2279

LIST OF APPELLANT'S EXHIBITS

Appellant's Exhibits	Appellees' Corresponding Exhibits	For Identification	Rejected	Admitted In Evidence
969	JQ			2280
970	JR			2157
971	JT			2173
972	JZ			2281
979				2292
986	NI			2292
997	PM			9553
999	PN			9397
1007				1765
1009		855		1430
1010(539)				5684
1016				11400
1029				4547
1030				4510
1031				4547
1032				4547
1033				4510
1047		4372		
1061		1902		4534
1062		2227		2296
1063		4262		4591
1064		4262		4591
1065		4262		4591
1066				2502
1067				3090
1067-A				3090
1068				3981
1069		4402		4452
1070		4495		4547
1071		4778	4780	

LIST OF APPELLANT'S EXHIBITS

<u>Appellant's Exhibits</u>	<u>Appellees' Corresponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
1072				6120
1073				6120
1074		6645		
1075		6673		
1076		7348		7349
1077		7348		7349
1078		7889	7889	
1079		8124		
1080		9579		9579
1081		9579		9579
1082		9579		9579
1083		11239		
1084		11746		
1101	FU	12144		12231
1102	FV	12144		12231
1103	FX	12145		12231
1104	GE	12144		12231
1111			12234	
1112			12236	
1118			12243	
1122			12245	
1124			12248	
1125			12248	
1128			12248	
1141	AN	8148		12116
1144	AO	8148	12127	

LIST OF APPELLEES' EXHIBITS

<u>Appellees'</u> <u>Exhibits</u>	<u>Appellant's</u> <u>Corres-</u> <u>ponding</u> <u>Exhibits</u>	<u>For</u> <u>Identification</u>	<u>Rejected</u>	<u>Admitted</u> <u>In</u> <u>Evidence</u>
G				11604
J				12114
K	19			5430
L				6020
M				6020
N				6020
O				6020
P	1212			6020
Q				6020
R				11604
S				8315
U	3			5405
V	2			5405
X	1225			11937-B
Y				7442
Z				7442
AA, AA-1				6020
AB				6020
AC				6020
AD				6020
AE				6020
AF				6858
AN	1141			12116
AO	1144	8148	12127	
AP				6020
AQ				6020
AR				6020
AS				6020
AU	1217(1240)			11297
AY				9800
AZ				9800

LIST OF APPELLEES' EXHIBITS

<u>Appellees' Exhibits</u>	<u>Appellant's Corres- ponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
BA				9800
BC				6117
BD				6117
BE	1142			6858
BF	1143			6858
BH	1239			6144
BI				6117
BJ	1148			6858
BK				6858
BL				6863
BM	1152			6858
BN	1186			6858
BO	1187			6858
BQ	1185			6858
BR			12131	
BS	1150			6863
BT			12131	
BV			12131	
BW	101			4049
BX	1191			5099
BY	1192			6858
BZ	1189			6858
CA	1190			6858
CB				11855
CC				6806
CD				11855
CE				6130
CF				6806
CG	1206	6317		6324
CH			12137	
CI				6806

LIST OF APPELLEES' EXHIBITS

<u>Appellees'</u> <u>Exhibits</u>	<u>Appellant's</u> <u>Corres-</u> <u>ponding</u> <u>Exhibits</u>	<u>For</u> <u>Identification</u>	<u>Rejected</u>	<u>Admitted</u> <u>In</u> <u>Evidence</u>
CJ			12140	
CK				6806
CL				6806
CM				6806
CN			12140	
CO				6806
CP				6117
CQ				6806
CR	1226			6117
CS				6806
CT				6117
CU				6117
CV	105			7209
CW	1195			12144
CY				6806
CZ	666			971
DA	106			984
DB	107			2130
DC	109			3169
DE	1208			6311
DF	1209			6206
DG	110			1245
DH	1197			12144
DI	111			1245
DJ	1207			6303
DK	112			3169
DL	113			3169
DM	114			1006
DN	115			12146
DO	116			3169
DP	117			2128

LIST OF APPELLEES' EXHIBITS

<u>Appellees' Exhibits</u>	<u>Appellant's Corres- ponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
DQ	118			1245
DR				6117
DS	119			1245
DT	120			1245
DV	121			3169
DW	122			3169
DX	123			4087
DY	126			1245
DZ	127			1245
EB	128			3169
EC	129			4099
ED	130			3169
EE	131			5156
EF	135			3169
EG	1198			12144
EI	1199			12144
EJ	136			3169
EK	137			11855
EL	138			12149
EM	139			12149
EN	140			12149
EO	1193			6858
EP	141			1045
EQ	142			4079
ER	143			4079
ES	1200			12144
ET	145			1046
EU	142			4079
EV	147			3169
EW				10202

LIST OF APPELLEES' EXHIBITS

Appellees' Exhibits	Appellant's Corres- ponding Exhibits	For Identification	Rejected	Admitted In Evidence
EX				4096
EY	148			12149
FA	679			1385
FB	149			3824
FD				8874
FE	609			8874
FF	156			5512
FG	157			5517
FH	158			4099
FI	159			5524
FJ	160			5766
FK	163			12153
FKX	161			12153
FL	162			5525
FLX	164			12154
FM	165			5096
FN	167			4096
FO	168			12157
FP	169			3169
FQ	171			3169
FR	172			3169, 5062
FU	1101			12144
FV	1102			12144
FX	1103			12145
FY	180			12158
FZ	183			5062
GA	186			5062
GB	185			5528
GC	744			1782

LIST OF APPELLEES' EXHIBITS

<u>Appellees' Exhibits</u>	<u>Appellant's Corres- ponding Exhibits</u>	<u>For Identification</u>	<u>Rejected</u>	<u>Admitted In Evidence</u>
GD	187			12159
GE	1104			12144
GH	190			3169
GI	192			2118, 3169
GIX	194			5062
GJ	193			5529
GJX	743			8874
GK	681			2016
GL	742			1826
GM	196			3169
GN	198			3169
GO	198			3169
GP	197			3169
GQ	200			5530
GR	201			1604
GS	782			2016
GT	782			1760
GV	950			2136
GW	951			2129
GX				8874
GY	952			2119
HA	740			11400
HF	207			11856
HG	208			5062
HH	1007			1765
HK	955			2257
HO	213			3169
HP	738			8872
HQ	737			8873

LIST OF APPELLEES' EXHIBITS

Appellees' Exhibits	Appellant's Corres- ponding Exhibits	For Identification	Rejected	Admitted In Evidence
HR	736			8874
HT	220			5548
HW				5129
HY	223			5062
HZ	222			5557
IE	226			3169
IF	956			2258
IH	229			3169
IJ	225			3169
IK	957			2260
IL	231			3169
IM	958			2261
IP	959			2262
IQ				5129
IR	232			2273
IV				5129
IW	960			2274
IX	962			2274
IY	235			3169
IZ	240			3169
JB	963			2275
JC	1211			6304
JD	242			3169
JE				11400
JK	964			2275
JL	965			2277
JM	966			2279
JN	967			2278
JO	968			2279
JP	776			9397

LIST OF APPELLEES' EXHIBITS

Appellees' Exhibits	Appellant's Corres- ponding Exhibits	For Identification	Rejected	Admitted In Evidence
JQ	969			2280
JR	970			2157
JS	683			8874
JT	971			2173
JU	773			9553
JV	261			5567
JW	772			12165
JX	265			2216
JY				1403
JZ	276			2281
	and 972			
KA	278			2215
KB	1194			6858
KC	1153			11865-A
KD	1154			11865-A
KF	284			3170
KG	1156			11865-A
KI	293			3170
KJ	296			3170
KN	684			11856
KO-1	766	8847		11400
KO-2		8847		8893
KP	765			8896
KQ	763			9035
KR	301			3170
KS	650			10627
KT			12172	
KU			12172	
KV			12172	
KW			12172	
KX	758			2292

LIST OF APPELLEES' EXHIBITS

Appellees' Exhibits	Appellant's Corres- ponding Exhibits	For Identification	Rejected	Admitted In Evidence
KY			12172	
KZ			12172	
LA	651			10627
LB			12172	
LD	686			9035
LE	754			9035
LF	687			9035
LG	689			9066
LH	1168			11865-A
LI	981			10086
LL	652			10627
LM	655			10627
LN	653			10627
LO	654			10627
LP	317			3170
	and 318			
LS	692			8874
LT	656			10627
LU	817			5705
LV	817			5705
LW				9553
MB	322			3170
MC	323			11856
ME			12186	
MF	982			11400
MG	982			11400
MH	815			9553
MI	331			5567
MK	1172			11400
ML				11400
MM	1173			11400

LIST OF APPELLEES' EXHIBITS

Appellees' Exhibits	Appellant's Corres- ponding Exhibits	For Identification	Rejected	Admitted In Evidence
MN	657			10627
MO	659			10627
MP	658			10627
MQ	338			3170
MR			12186	11400
MT	1175			11865-B
MU	661			10627
MV	663			10627
MW	662			10627
MX	349			5567
MY, MZ			12186	
NB	352			3170
NC	664			10627
ND	665			10627
NF			12186	
NG			12186	
NI	986			2292
NJ	924			11856
NL	926			9397
NN	880			9397
NO	883			9397
NP	812			9397
NQ	823			9553
NR	824			9553
NS	442			3170
NT	459			3170
NU	831			9553
NV	835			9553
NW	819			9553
NX	891			9553
NY	1181			11865-C

LIST OF APPELLEES' EXHIBITS

Appellees' Exhibits	Appellant's Corresponding Exhibits	For Identification	Rejected	Admitted In Evidence
NZ	838			12190
OA	893			9553
OB	1182			11865-C
OC	840			9553
OF	847			9553
OG	848			7598, 11400
OH	850			9553
OI	852			9397
OJ	1227			11874-A
OK	854			9553
OL	1213			11937-A
OM				11874-A
ON	907			9553
OO	1230			11874-A
OP	855			9553
OQ			12187	
OR			12187	
OS	1203 and 1215			11937-A
OT	856			9553
OU	1214			11937-A
OV	1218			11937-A
OW			12189	
OX	1219			11874-A
OY	1236			9553
OZ	860			9553
PA	861			9553
PB	1221			11937-A
PC	862			9553
PD				9553
PE	864 and 1234			9553

LIST OF APPELLEES' EXHIBITS

Appellees' Exhibits	Appellant's Corres- ponding Exhibits	For Identification	Rejected	Admitted In Evidence
PF	865			11400
PG	866			9553
PH	1222			11400
PI	867			11400
PK	1223			11937-B
PL	873			9553
PM	997			9553
PN	999			9397
PP	810			9783
PQ				11400
PR	694			9397
PS	1			5404
PT			12186	
PU			12186	
PW		1720		11604
PZ				11604
QA				7443
QD				2016
QE				6954
QF				7603
QG				7598
QJ		842		5104
QK		842		5104
QL		842		5104
QM		842		5104
QN		1515		1516
QO		1525		1528
QP		1529		1529
QQ		1938		
QR		2409		
		2525		

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<u>Appellees'</u> <u>Exhibits</u>	<u>Appellant's</u> <u>Corres-</u> <u>ponding</u> <u>Exhibits</u>	<u>For</u> <u>Identification</u>	<u>Rejected</u>	<u>Admitted</u> <u>In</u> <u>Evidence</u>
QS		2413, 2521		
QT		2523		
QU		2523		
QV		2523		
QW		2523		
QX		2523		
QY		2524		
QZ		2524		
RA		2525		
RB		2525		
RC		2525		
RD		2525		
RE		2525		
RF		2525		
RG		2526		
RH				3267
RI				3442
RJ		3479		3487
RK		3487		3582
RL		3487		3582
RM		3027		3115
RN		4803		9640
RO		4805		9642
RP		4817		5762
RQ		4823		9639
RR		4842		
RS		4829		6992
RT		5669		5684
RU		6035		6035
RV		7744		12035

LIST OF APPELLEES' EXHIBITS

<u>Appellees'</u> <u>Exhibits</u>	<u>Appellant's</u> <u>Corres-</u> <u>ponding</u> <u>Exhibits</u>	<u>For</u> <u>Identification</u>	<u>Rejected</u>	<u>Admitted</u> <u>In</u> <u>Evidence</u>
RW				9688
RX		11092		11092
RY		11298		11874-A
RZ				12571

LIST OF APPELLEES' EXHIBITS

<u>Appellees'</u> <u>Exhibits</u>	<u>Appellant's</u> <u>Corres-</u> <u>ponding</u> <u>Exhibits</u>	<u>For</u> <u>Identification</u>	<u>Rejected</u>	<u>Admitted</u> <u>In</u> <u>Evidence</u>
(Post Trial Transcript pp.)				
RZX				107
SB				109
SC				110
SD				110
SE, SF				110
SG				111
SH		112		
SI				113, 116
SJ				116

Appendix, Part 2

Diagram from pp. 8-9 of Booklet — label Illustration A

Photographs (Figs. 4 and 5) — label Illustrations B & C

Brick and Shim drawings (pp. 000099-000100) — label
Illustrations D & E

Kaiser Brochure — label Illustration F

KAISER REFRACTORIES FOR APPLICATION IN THE CEMENT INDUSTRY

SCHARGE OR HOSEBINO
Temperature: up to 150° F. - 2200° F.
Slagging: Unimportant
Spalling: Moderate to severe
Abrasion: Moderate to severe
Jax-Bee
Jax-Bee S.M.
Jax-Bee Maximal
Jax-Bee

WIND NOOD
Temperature: up to 2400° F.
Slagging: Unimportant
Spalling: Moderate
Abrasion: Unimportant
Jax-Bee
Jax-Bee S.M.
Jax-Bee Maximal
Jax-Bee

COOLING ZONE
Temperature: up to 2500° F.
Slagging: Unimportant
Spalling: Slight to severe
Abrasion: Moderate to severe
Jax-Bee Maximal
Jax-Bee S.M.
Jax-Bee or Big Savage S.M.

BURNING ZONE
Temperature: up to 2900° F.
Slagging: Severe
Spalling: Moderate to severe
Abrasion: Moderate to severe
Unifab
Alumex-70 and 70C
Alumex-80

INTERMEDIATE ZONE
Temperature: up to 2400° F.
Slagging: None to moderate
Spalling: Slight to severe
Abrasion: Moderate to severe
Rajah
Jax-Bee S.S.
Jax-Bee or Big Savage S.M.
Mo-Rex or Big Savage

DRYING ZONE
Temperature: up to 1800° F.
Slagging: None
Spalling: Moderate to severe
Abrasion: Slight to severe
Jax-Bee or Big Savage S.M.
Mo-Rex or Big Savage
Hi-Strength
(for chain section)

FLUE STACK
Temperature: up to 1300° F.
Slagging: None
Spalling: Unimportant
Abrasion: Slight
Mo-Rex
Viking or Big 4

CLINKER CHUTE
Temperature: up to 2200° F.
Slagging: None
Spalling: Moderate to severe
Abrasion: Severe
Jax-Bee
Thor or Big 4 S.M.

COOLER - GRATE TYPE
Temperature: up to 1600° F.
Slagging: None
Spalling: None to severe
Abrasion: None to severe
Jax-Bee or Big Savage S.M.
Mo-Rex or Big Savage
Thor
Viking
Max-Bond
Mexicast
Furnas-Crete

COOLER - ROTARY TYPE
Temperature: up to 2000° F.
Slagging: None
Spalling: Moderate to severe
Abrasion: Severe
Jax-Bee or Big Savage
Thor or Big 4 S.M.

RAW MATERIAL DRIER
Temperature: up to 1200° F.
Slagging: None
Spalling: Moderate
Abrasion: Moderate to severe
Jax-Bee or Big Savage S.M.
Mo-Rex or Big Savage

DOUST CHAMBER
Temperature: up to 1300° F.
Slagging: None
Spalling: Unimportant
Abrasion: Slight to moderate
Thor
Jax-Bee or Big Savage S.M.
Mo-Rex or Big Savage
Furnas-Crete

These recommendations apply to most rotary cement kilns. Where unusual conditions of operation exist, your Kaiser Refractories representative will be happy to assist in determining the most economical and efficient lining for your kiln.

Illustration A (see Brief, p. 5)



Illustration B (see Brief, p. 7)

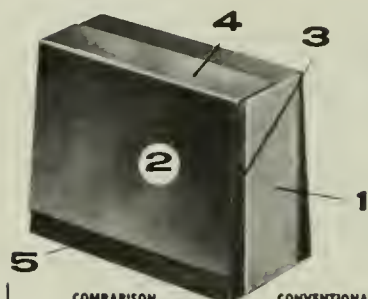


Illustration C (see Brief, p. 7)

Here's why you can reline in half the time with

Kaiser Unitab Kiln Liners*

Each of these five comparisons shows another Unitab Liner installation advantage!



COMPARISON	CONVENTIONAL BRICK	KAISER UNITAB LINERS	UNITAB LINER FEATURE
Corbbord spacers for longitudinal expansion	Install by hand	Attached to brick at factory	Combustible spacer automatically provides correct allowance for longitudinal expansion (between rings)
Steel plates between bricks for bonding	Install by hand	Attached to brick at factory	Bonding shim to liner assures automatic placement of shim
Provision for circumferential expansion	Install corbbord spacers by hand	Expansion provided by thickness of adhesive that bonds shim to brick	Thickness of combustible adhesive provides correct allowance for circumferential expansion (within ring)
Hot face indicator	No hot face indicator	Clearly identified by touch or sight	Plate overlapping hot face makes visual inspection quick—easy to see that each brick is correctly installed
Effect on reducing shell temperature	None	Design provides heat buffer to reduce shell temperature	Half-inch gap between end of shim and shell acts as heat buffer to reduce shell temperature for greater kiln efficiency

*U.S. Patent No. 2,626,077

Savings up to 50% on installation time have already been reported by operators using Kaiser Unitab Liners, the industry's first kiln liners with bonded shims and spacers.

Because the shim overlaps the hot face of the liner, the hot face is easily identified by sight or touch... makes installing Unitab liners almost as simple and as fast as lining up books on a shelf!

In addition, as this overlapping shim melts and oxidizes, feed particles combine with it to give you a tight coating—fast.

Unitab Liners are made with Kaiser Periclase Chrome burned brick. Since 1945 this brick has pioneered every major improvement known today in basic liners for rotary cement kilns. Now with shims and spacers added it becomes the most advanced basic hot zone liner in the industry, coupling outstanding performance with easy, fool-proof installation.

Why not let us show you how this original Kaiser Chemicals development can help you reduce kiln down time and give you improved hot zone service?

Enter 1496 on Reader Card



PIONEERS IN MODERN BASIC REFRACTORIES
BASIC REFRACTORY BRICK AND RAMMING MATERIALS • DOLOMITE
MAGNESIAS • ALUMINA • MAGNESITE • PERICLASE

Call or write Kaiser Chemicals Division, Dept. CK522, KAISER ALUMINUM & CHEMICAL SALES, INC., at any of the Regional Offices listed below.

PITTSBURGH 22, PA
HAMMOND, IND.
OAKLAND 12, CALIF.

3 Gateway Center
518 Calumet Building
1924 Broadway

Illustration F (see Brief, p. 9)

Appendix, Part 3 (see Brief pp. 11 & 60)

(Tr. 5040-5069 from Transcript Vol. 42)

MR. ELLIOTT: I so accept it. I will proceed now with the identification and the varying and spacing that Mr. Rieber represents to find out what this witness knows about it.

THE COURT: All right.

BY MR. ELLIOTT:

Q Mr. Woodward, directing your attention to the 1955 Kaiser orders, the three orders that you told us about in 1955 of short shimmed linings, the first lining was in April, as I remember it; the order. Can you tell us what the amount of spacing was of the shim from the cold face of the brick in that order?

MR. RIEBER: This has all been covered, your Honor, in the question and answers yesterday. The witness went into great detail —

THE COURT: It seems to me it was.

MR. ELLIOTT: I don't see it in the transcript.

THE COURT: Go ahead then.

THE WITNESS: One-half inch.

BY MR. ELLIOTT:

Q All right. Now, what is your spacing in your orders — strike that, please.

What was your spacing in your orders between the 1955 orders and the 1961 order in September? Was it different from half an inch?

[Tr. 5041] A The 1961 order was one-quarter of an inch.

Q Did you have any orders between your third order in '55 and the September 1961 order?

A Yes.

Q What was that?

A The lining to be such that the steel shims will not touch the kiln shell.

Q When the order was delivered, what was the amount of spacing?

A To the best of my knowledge it was about a half inch — a quarter to a half-inch.

THE COURT: When was this?

THE WITNESS: Between 1955 and 1961.

THE COURT: I see. All right.

BY MR. ELLIOTT:

Q Now, Mr. Woodward, have you ever heard the name GR-23 applied to a refractory article for use in a rotary cement kiln?

A Yes.

Q Could you tell us what your understanding is of that term as applied to a physical article?

A That is an insulating brick. A GR-23 is the designation of the temperature which that brick will withstand.

Q In hundreds of degrees Fahrenheit?

[Tr. 5042] A In hundreds of degrees Fahrenheit.

Q Who made that brick, Mr. Woodward, if you recall?

A To the best of my knowledge it was Armstrong Cork Company.

Q Can you tell us what the composition of that brick was, the GR-23?

A No more than that it is a very porous brick made out of a refractory material.

Q Was it, as far as you could tell, substantially uniform; or was there more than one composition in the brick?

A So far as I know, it was uniform.

Q Did you use such a brick in your kilns?

A Yes.

Q Where in your kilns did you use it?

A In the cold end down approximately a third of the length of the kiln.

Q About 140 feet?

A That's about right.

Q That's from the discharge end?

A No, from the — well, in our particular kilns that would put it just about in the middle there.

Q It would be about 140 feet from either end then?

A From either end, but towards the cold end.

Q Was that uphill of the calcining zone?

A Yes.

[Tr. 5043] Q So you used the term cold end to refer to the —

A Feed end.

Q And then you used another kind of brick in the calcining zone, did you?

A Yes.

Q And what kind of brick was that?

A That is 70 percent alumina, 50 percent alumina, and also first quality fire clay brick.

Q Turning back to your 1955 orders of Kaiser short shimmed Periclase chrome A burned brick, you told us yesterday you ordered three, 40-foot linings in the year 1955?

A Yes.

Q I wonder if you could tell us how many linear feet of such brick you put into the first kiln installation that you made after you received the first order of Kaiser brick?

A Well, to the best of my knowledge it was somewhere between 15 to 20 feet.

Q Does 16 feet, the figure 16 feet, ring a bell?

A That could have been it.

Q Do you recall which kiln that was installed in, sir?

A As I remember, it was No. 8 kiln.

Q Now, after the installation in No. 8 kiln of approximately 16 feet of these Kaiser articles, did you thereafter make another lining installation in 1955 using such articles?

[Tr. 5044] A Yes.

Q And can you recall which kiln that went into?

A No, I can't.

[Tr. 5045] Q At that time you had eight kilns, didn't you?

A Yes.

MR. RIEBER: Your Honor, this material is covered in the stipulation as to what Mr. Woodward would testify to.

THE COURT: In 1955, it certainly is.

MR. RIEBER: I don't see the reason for going through it. If he is trying to impeach the stipulation —

MR. ELLIOTT: Let me explain, if I can, and perhaps quiet counsel's apprehension.

THE COURT: All right.

MR. ELLIOTT: Mr. Woodward testified that three 40-foot lineal foot measurement linings were ordered, making 120 linear feet of brick. As far as I can tell from the stipulation, from the documents, and so forth, that Kaiser had available, approximately $29\frac{1}{2}$ or 30 feet of brick was actually installed in the year 1955. Because we stipulate to one lining of 16 feet, approximately, and one of $13\frac{1}{2}$ feet. And I just want to —

THE COURT: You asked him yesterday whether or not this 40 feet of lining made up the lining for eight kilns or eight linings, and he said yes.

MR. ELLIOTT: That I understood to be a hypothetical lining, your Honor, of a burning zone 40-foot long. The question is how many bricks actually went into [Tr. 5046] the kiln at any one time, was it a complete burning zone lining? And that's what I was trying to explore.

THE COURT: Go ahead.

BY MR. ELLIOTT:

Q Mr. Woodward, the 16 feet of lining in your No. 8 kiln, was that a complete burning zone lining?

A No.

Q Do you recall whether any other brick was placed in the No. 8 kiln concurrently with the Kaiser short shim brick when you put the 16 feet in, in May of 1955?

A There was 10 inches of 70 per cent alumina brick put in at that time.

THE COURT: How much?

THE WITNESS: 10 inches.

THE COURT: One brick, probably, is that right?

THE WITNESS: It would be — 70 per cent brick is 4 inches longitudinally along the length of the kiln shell, so that was about $2\frac{1}{2}$ brick wide.

THE COURT: Okay.

BY MR. ELLIOTT:

Q Without remembering which kiln it was, because you said you couldn't, the $13\frac{1}{2}$ — I beg your pardon. That is why I started asking him the question. I can't ask him if he has read the pretrial order.

Do you remember, Mr. Woodward, an installation [Tr. 5047] using $13\frac{1}{2}$ feet of these Kaiser articles in the month of July of 1955?

MR. RIEBER: Your Honor, I refer your Honor to page 54 of the pretrial order. The purpose of a stipulation like this is just to avoid long and time-consuming examination of details that seem to me are absolutely irrelevant.

MR. ELLIOTT: I want to go beyond the stipulation to find out what other brick, if any, were put in.

MR. RIEBER: Let me finish my statement, please, counsel.

The only purpose for which this evidence is material at all is to show whether or not these brick were on sale

during 1955. What happened to them after they were sold is immaterial to the point in question. That is the establishment of a statutory bar. We refer your Honor to the statute, which says that the statutory bar attaches when the brick are on sale. Now, when brick have been sold, obviously they were on sale, and it seems to me pointless to go into these long discussions of what happened to the brick afterward, and whether it was 13½ feet or whether it went into No. 8 or No. 2 kiln. It just doesn't make a whit of difference.

MR. ELLIOTT: I would like to argue that point.

THE COURT: All right. Go ahead.

[Tr. 5048] MR. ELLIOTT: Your Honor, our submission is now, as it was at the time of the summary judgment, that there has been no case like this case where a manufacturer having no facilities of its own to test or try out new articles that it wanted to see what the characteristics, and so forth, were in service, there has been no case like this where Kaiser, lacking the facilities, utilized its customers' rotary kilns as the vehicle for the experimental use of the particular article.

Now, it is our submission that in this case the evidence will show that the Kaiser Company did so utilize the rotary kilns of several of its customers in which to conduct experimental use of the refractory articles, which finally became known as the Unitab, and that this —

THE COURT: If you want to direct questions toward the idea that this is experimental, you can do so; but this doesn't get to it that you are asking him now.

MR. ELLIOTT: I think the word "experimental" might be a conclusion, your Honor. I think what I was —

THE COURT: I didn't say you had to ask him that term. But the thing is you have to direct your questions along that line, and this doesn't show it at all.

The testimony to now from Mr. Woodward is that it is the policy of their company to buy refractories from the various people who have them for sale; in other words, [Tr. 5049] they don't have only one supplier, they buy it from one or another. It is also the policy of the company to experiment. And as I take it from what he said, that they never cease to try out new things, and when they get somebody who sells them on the idea that this is a good thing, they try it.

That's where we are now. How that fits in I don't know, but you have to take it from there.

MR. ELLIOTT: Your Honor, I offer to prove that in at least some of these 1955 installations there were bricks laid in side by side for comparative testing purposes; the Kaiser Unitab bricks laid in, or the articles which were sold in 1955 before they were called Unitabs, laid in side by side with General Refractories' Rytex, some Magnex brick, some steel —

THE COURT: If you want to explore that, go ahead.

MR. RIEBER: I would like to speak to that. I don't think that is material or relevant to this case.

THE COURT: It all depends on whose experiment it is. If it is the experiment of Southwestern Portland Cement Company, then it hasn't anything to do with this case. If it is the experiment of Kaiser, it might.

MR. RIEBER: I think that foundation ought to be laid before we go into this.

THE COURT: I do, too.

[Tr. 5050] MR. RIEBER: In other words, to enable this witness to determine who was experimenting, if anybody, and then go into what the experiments were.

MR. ELLIOTT: I would like to find out what the facts of a particular lining were, your Honor.

THE COURT: We can't do that, Mr. Elliott, and I will tell you why. If we start going through all the linings of eight kilns over a period of several years, we would be here as long as we have already been here, and I don't see the materiality of it. It is just a hope that in the end something will show up.

MR. ELLIOTT: I have more than a hope.

THE COURT: I didn't want to be as blunt about this as I just had to be. But it is a fact that you have to show that this is Kaiser's experiment, if you are going to say it is an experimental use. And I think that anybody who has lived a while in any community where they are manufacturing things, everyone is always trying things out, I mean even after — after General Motors builds a car with a new device in it, it sells it to a lot of people and tries it out, but they still sold them.

MR. RIEBER: That's the point, your Honor —

THE COURT: I know. You don't have to gild the lily.

MR. RIEBER: I am not trying to gild the lily, but [Tr. 5051] I disagree with one point that you made, and that is that the experimentation of Kaiser's is in any way material or relevant to this case.

Kaiser hasn't claimed to have made this invention, not the invention that is in issue in this lawsuit, and it is only the experimentation by the inventor that could

possibly be relevant to this case. And that is the point that I have tried to make several times here, that —

THE COURT: I understand you, all right, but I am also trying to understand the plaintiff's view; and if he can get it done in some reasonable time I want him to do it.

MR. ELLIOTT: Your Honor, I can't find the official copy of the exhibit that I had in mind. I will hand up my copy of Exhibit 186, which is an April 27, 1955 call report by Palmer B. Ford, and I particularly direct the court's attention, before he goes into the detail of the report, to the paragraph that begins at the bottom of page 1.

My submission, your Honor, is this: As I apprehend it — I have looked carefully, as I say, and I don't think there is an authority squarely in point upon the situation, the factual situation in this case, which I think is unique. Whether Mr. Rieber is right in the law or I am right, I think I ought to have an opportunity to [Tr. 5052] explore the factual bases for what was done, and then at a later time the court will not be in doubt about what the facts were. It can properly apply whatever rule of law it does apply. But I think that I should have an opportunity to advance the evidence and support my theory of the law.

MR. RIEBER: May I answer that, your Honor?

THE COURT: I will tell you what we will do. We will take our morning recess at this time and I will reconvene with counsel and the reporter and the clerk in chambers.

MR. ELLIOTT: After the recess?

THE COURT: Yes.

(Recess taken.)

[Tr. 5053] (Whereupon the following proceedings were held in chambers.)

THE COURT: All right. Now, this question of experimental use is, as I understand it, applicable to the patent law, it is a situation wherein an inventor can manufacture his invention and try it out to see whether or not it works and so forth. That isn't going to be a bar. But it is not at all unusual, as I have already said, for companies manufacturing any products to experiment on the public. They sell the products, and it doesn't change the fact that they are sold. They haven't retained anything. It is not just purely experimental. They are financing the experiment by selling the product.

Now, here you don't have even the inventor doing it. You have someone you are accusing of being an infringer. The Davis patent isn't in suit. If it were, why then maybe there would be a question as to whether or not this was an experiment to build up the Davis patent. But since that is not in suit, I do not see how this could be any kind of an experiment. I think you are just in a position where you have to establish your patent cause of action. If you have a gap there, in other words, if it is contended on the motion for summary judgment that you abandoned an application and then came in with another one, and this is a use that fits the statute, why they are just out of luck on it. That is [Tr. 5054] all there is to it.

MR. ELLIOTT: I appreciate the court's comments.

THE COURT: I just don't think you can label this kind of a thing to any kind of an experimental use, because the experiment would be for the purpose of arriving at the best way for the Davis patent; and not for yours.

MR. ELLIOTT: Your Honor, I don't mean to argue with the court. I am aware of the fact that — for ex-

ample, I don't have any authority except the *Watson vs. Allen* case, 254 Fed. 2d in the District of Columbia. That was the automobile part case on experimental use. That is the closest thing I have to —

THE COURT: But that was by the people who owned the invention.

MR. ELLIOTT: Well, there was some dictum in that case, your Honor, that led me to my present view of wanting to prove up the facts, or at least perhaps if the court is averse to my making an offer of proof on it so we can make a clean issue. Then if that is not the law, if I can't persuade the court that that is, or should be the law, that perhaps I can raise it if we go up on an appeal to preserve the point.

THE COURT: I would like to have you get it into the case so that you could raise it on appeal if you wanted to. I don't mind that. But I don't think that we can [Tr. 5055] devote hours and hours to it. If this one letter, this memorandum, if that is what you are relying on, then I don't think — I don't know if there is going to be an objection of getting it in evidence or not.

MR. RIEBER: I was going to offer it during cross, your Honor.

THE COURT: So let's admit that in evidence, and you can base it on that if you want to. Otherwise you would have to have a court order to create the situation of experimental use. That is why I called you in here, because I don't want to tell the witnesses. You would have to have some showing of an agreement or understanding between Kaiser and Southwestern, for example, that they would like to put into their kilns, since they lack the facilities, and experimental lining which they think will be very good.

I am just imagining this now as a deal. I mean I can see a salesman with the authority of his company saying, "Now, this is an expensive installation. If you will take the risk of the down time that may be required because of the loss of the lining, if it doesn't work, then we will finance the lining initially. If it works, then you will pay us for it. If it doesn't work, why you don't owe us anything."

[Tr. 5056] Now, I can see such an arrangement. If you have any evidence of that with any of these people, then I would say, all right, go ahead and put it on, and I would listen to it just for that purpose. But if you don't, then I think you had better drop it, because I don't see how it fits in the first place. There is no legal theory that appeals to my mind as applicable to this kind of a situation under the law as I understand it.

MR. ELLIOTT: Well, I will just say that the evidence that I have, your Honor, consists of the Kaiser technical salesmen's call reports and interoffice memoranda of Kaiser dealing with their understanding among themselves, and their understanding with the two cement company customers, that they were in — perhaps loosely, but nevertheless in a real sense — joint experiments or trials of these linings; that the customers knew that they were guinea pigs or pigeons to try these out.

THE COURT: But they bought them. Up to now the evidence shows that these guys are just as interested in experimenting as anybody else, and they are willing to take the risk. It may be it is a pretty poor product that they would try to experiment with some time or another and lose the lining. On the other hand, they might find something good. So it is their experiment, and not the other fellow's. And even though they both admittedly [Tr. 5057] are in that position, it doesn't make any difference.

But when you speak about “experimental,” and use a word like that in a memo — prohibition is referred to as the grand experiment, and so forth, and I know it was one that had to fail and be abandoned.

MR. RIEBER: Your Honor, I think you put your finger exactly on what has happened here, and it is a matter of semantics. I don’t like to always argue that —

THE COURT: So let him put in what there is on that so he has got it. If you will just stipulate to put those in, all right. But if these fellows had any conversations or understandings with Kaiser salesmen on this, why, ask them about that, and if they did, then I think I would — I don’t think it is material, I agree, and you can make the objection, but I will overrule it just to give them the record so he can take it up and establish it if he wants to.

MR. RIEBER: Your Honor, I had concluded that several days ago, actually, and I felt this would go expeditiously, but it seems to me with two witnesses sitting here from Victorville who are anxious to get back, and the witnesses are piling up like a log jam, that we ought to try to avoid a long circuitous approach to the problem.

THE COURT: Be direct about it. Just ask them.

[Tr. 5058] MR. ELLIOTT: It not without difficulty asking — let me say this, your Honor. When all is said and done these people are our competitors. I have to take them as my own witnesses, and I am bound — we both know I am taking a risk here, and I am just not going to stick my chin all the way out the way counsel wants me to do. I want to close in on it. I don’t want to take two days to do it, but —

THE COURT: I am going to tell you what is going to be the result. The result is going to be that I have to

sustain the objections to it on the ground it doesn't meet any of the issues. I am willing to let you get it in if you do it in a hurry and get it over with.

I don't see where it would make any difference if you asked him, do you or do you know of anyone — or if this man is the one who contracts for brick, he is the one you ought to ask — “Did you ever have a conversation with Palmer Ford with regard to purchasing these bricks?” Maybe he will say “Yes,” or “No.”

And I hope you won't object to leading him a little bit. You have got a legal right to object, but I think he could ask him, “Did you have any agreement with him to the effect that this lining would be put in at Kaiser's request as an experiment for Kaiser?”

[Tr. 5059] If you want to ask that kind of a thing, and he says, “Yes,” why, then, you are in an area where you have to just explore what is being said.

MR. RIEBER: I would like to lay my cards on the table. I was going to ask that very question on cross if counsel didn't ask it. If he asks it on direct, I certainly wouldn't object to it.

THE COURT: Let's approach it that way. That doesn't hurt anything.

You have been talking to these men. Yesterday I came in around 8:00 or so, and you fellows were just drifting in, and you went into —

MR. ELLIOTT: I had half an hour, 45 minutes with him.

THE COURT: Everybody expects you to do that. I think a lawyer is a fool to put a witness on the stand that he has never even talked to in a situation as important as this. We expect you to do that.

If you were going to tip him off to something, you would have done it. We know that. We are all grown up boys.

MR. ELLIOTT: If I could tip him, and if he would tip.

THE COURT: That's what I say. You have had the opportunity and we are not worried about having it [Tr. 5060] out there in front of everybody. So let's ask him the question and be done with it.

MR. ELLIOTT: All right, your Honor.

On the Kaiser documents, of course, this man is not a percipient witness to the making of the documents. There are about a dozen Palmer Ford call reports that relate to Victorville, and I think by asking him I can —

THE COURT: Why don't you just pick those out and ask Mr. Rieber if he will have them admitted? If he does, then you can get them admitted and the whole thing is over with.

MR. RIEBER: I think some of them are already admitted.

THE COURT: And then he doesn't have to worry about it.

MR. ELLIOTT: This is a set (indicating). To the extent that they are not admitted, maybe we can do that. 172, 186 —

MR. RIEBER: Let me just call them off. There are no numbers on them.

MR. ELLIOTT: Take this set. They are down in the corner.

MR. RIEBER: 172, no objection.

186, no objection.

194, no objection.

[Tr. 5061] 208, no objection.

223, no objection.

239, no objection.

256, no objection.

257 — there doesn't appear to be any relevance, but we don't object to 257.

332, no objection.

382, no objection.

476, no objection.

412, there is no objection.

MR. ELLIOTT: I have one other that is not in the stack.

MR. RIEBER: May I keep these?

MR. ELLIOTT: Yes, you can keep that. Here is an Exhibit 183 that my understanding is that it refers to both Riverside and Southwestern, but it is an internal Kaiser document that relates to the point under discussion.

MR. RIEBER: All right. No objections to 183.

MR. ELLIOTT: You had better read the date up at the top.

MR. RIEBER: April 26, 1955, interoffice memorandum from J. T. Putnam to George C. Davis, Jr.

MR. ELLIOTT: I offer the admission into evidence of the exhibits just read off by Mr. Rieber as to which he has no objection.

[Tr. 5062] THE COURT: All right. They will all be admitted.

(The exhibits marked Plaintiff's Exhibits 172, 186, 194, 208, 223, 239, 256, 257, 332, 382, 476, 412 and 183 were received in evidence.)

[Tr. 5063] MR. ELLIOTT: Now, your Honor, I will ask then when we go back in just one or two questions along the line indicated by the court. I have one question on one other subject matter, and that will complete my examination of Mr. Woodward.

THE COURT: All right, fine.

(Whereupon the proceedings were resumed in open court as follows:)

THE COURT: All right, sir.

BY MR. ELLIOTT:

Q Mr. Woodward, you told us yesterday that before the first Southwestern brick order to Kaiser for short shims in April of 1955 you had spoken with Palmer B. Ford about that order. Do you recall that?

A Yes.

Q Was that discussion or conversation you had with Mr. Ford in the presence of any other person?

A Well, I think it was both with him, by myself, and with others too.

Q Do you recall discussing the subject matter in the presence of Mr. Halstead?

A Yes.

Q With Palmer Ford?

A Yes.

Q Did Mr. Palmer Ford, during either his discussion [Tr. 5064] with you and Mr. Halstead, or with you by

yourself, state directly or suggest to you that the installation, projected installation, of this short shimmed lining was to be an experiment on Kaiser's part in connection with the Southwestern Company?

A No, I wouldn't say it was that way. We have always tested different — well, in the case of bricks, different types of brick and other material which we use at the plant. We are always interested in a new idea or a new article.

Q Did Mr. Ford use the word "expirement" or "trial" in his conversation with you at that time?

A I don't recall.

Q Mr. Woodward, in February of 1955 prior to the discussion you had with Mr. Ford, I assume — incidentally, am I correct in that? Your order, the first short shimmed order, was in April of 1955?

A That's correct.

Q And how far before that order was your discussion with Mr. Ford that you have told us about?

A I don't recall exactly, but it was some time in the Spring of '55.

Q Within a month or so after the April order?

A Well, the "or so" part of it would be right.

Q Well, I would like to establish a cut-off date if [Tr. 5065] I can.

A Well, I don't think I can help you there. I mean we had these discussions. As to the exact time they took place, I can't remember.

MR. ELLIOTT: Your Honor, I would like to show the witness Exhibit 172 to try to refresh his memory on this date if I may.

MR. RIEBER: We have no objection, your Honor.

THE COURT: All right.

MR. ELLIOTT: I will just give him a plain copy instead of digging up the folder.

BY MR. ELLIOTT:

Q Would you please look at the March 15, 1955 document, Exhibit 172? I direct your attention, particularly Mr. Woodward, to the third paragraph which commences: "Halstead stated."

A Yes.

Q Have you read that?

A Yes.

Q Is that an accurate report so far as it goes of the conversation had in your presence with Mr. Halstead and Palmer B. Ford?

A Well, it is right. But we had numerous discussions like this with not only Mr. Ford, but others.

Q Well, I want to stay with Mr. Ford for the time [Tr. 5066] being. He gives me quite enough trouble by himself.

THE WITNESS: Well, that is about the extent of the conversation.

Q Well, my point is, Mr. Woodward, this a memorandum dated March 15, 1955 in which Mr. Ford reports to his superiors a conversation, which to me appears to cover the grounds that you told me about in having a conversation with Mr. Ford at about that time.

A Yes, that's right.

Q Without trying to lead you, you have read the paragraph, is it more probable than not, Mr. Woodward,

that this March 15 date is the date of the conversation with Mr. Ford that you discussed earlier?

A I think it is.

Q Now, as of February, 1955, Mr. Woodward, if someone had told you to construct a lining zone of a rotary cement kiln with bricks and metal plates, would you have been able to so construct such a lining?

A I don't know whether I follow you exactly.

Q Well, if somebody had told you, without specifying what kind or shape or size of brick, had told you to lay up a lining in a particular designated kiln, and had said, "Jack, put in a burning zone lining in there with brick with metal plates." Would you have understood that direction?

A Yes.

[Tr. 5067] Q How would you have laid it up if you laid one up? What would you have used in order to construct that lining?

A Well, at that time, the plates and brick would have been separate; a brick and a plate, and a brick and a plate around the circle, or the circumference of the kiln.

Q And what would the shape of the bricks have been?

A They would have been arch brick.

Q The arch brick is different than, say, a common red brick in configuration; is it not?

A That's right. Red brick can be arched though, too.

Q I beg your pardon, it can be. The arch brick is different in configuration from a rectangular brick; is it?

A Straight brick, yes.

Q Straight brick. The reason for the arch is to turn the circle within a rotary kiln; is that right?

A That's correct.

Q And so if you had laid up such a lining you would have used an arch brick with these separate metal plates?

A That's right.

Q Now, suppose someone had said at the same time, "Will you please construct a lining with brick with spaced metal plates, short shimmed, held away from the shell." Would you have understood that direction? Would you have been able to construct a lining?

[Tr. 5068] A Yes.

Q Would you have used the arch-shaped brick?

A Yes, we could have.

Q And what kind of brick would you have used?

A Well, —

Q As between, say, acid and basic?

A I might have used a basic brick. I might have used a high alumina brick.

Q With metal plates?

A Not with metal plates, no. With the basic brick, it might have been with metal plates.

Q My question assumed the direction to you to build a lining with metal plates and brick. That would have been basic brick then as I understand your answer?

A Metal plates are always used with basic brick.

Q Are they used with alumina brick?

A They have been. We did not use them.

Q So if somebody told you to construct a lining of refractory brick with metal plates, they would have been basic brick that you would have used?

A In all probability.

Q And if you had constructed such a lining with basic arch shaped brick and short shims, where would you have placed the shims if no direction had been given you as to their placement or orientation?

[Tr. 5069] A The shims would have just been dropped in.

Q In the circle?

A In the circle.

MR. ELLIOTT: Thank you, your Honor. Those are all the questions I have.

THE COURT: All right. Is it your desire now to adjourn?

MR. RIEBER: Yes, I would like to adjourn and start the cross examination immediately after reconvening, your Honor.

THE COURT: All right, we will adjourn until 2:00 o'clock. You said you wanted to talk to Mr. Elliott for a few minutes. I hope you can do that before that time.

Appendix, Part 4 (see Brief, p. 64)

Elizabeth v. American Nicholson Pavement Co. (1878)
97 U.S. 126, 24 L.ed. 1000, at 1004:

“Now, the nature of a street pavement is such that it cannot be experimented upon satisfactorily except on a highway, which is always public.

“When the subject of invention is a machine, it may be tested and tried in a building, either with or without closed doors. In either case, such use is not a public use, within the meaning of the statute, so long as the inventor is engaged, in good faith, in testing its operation. He may see cause to alter it and improve it or not. His experiments will reveal the fact whether any and what alterations may be necessary. If durability is one of the qualities to be attained, a long period, perhaps years, may be necessary to enable the inventor to discover whether his purpose is accomplished. And though, during all that period, he may not find that any changes are necessary, yet he may be justly said to be using his machine only by way of experiment; and no one would say that such a use, pursued with a *bona fide* intent of testing the qualities of the machine, would be a public use, within the meaning of the statute. So long as he does not voluntarily allow others to make it and use it, and so long as it is not on sale for general use, he keeps the invention under his own control, and does not lose his title to a patent.”

Appendix, Part 5 (see Brief, p. 77)

Hoge Warren Zimmerman Co. v. Nourse & Co. (6 Cir. 1961) 293 F.2d 779 at 784:

“Related to the above, since exceptional circumstances have been interpreted as incorporating concepts of fraud, malice, bad faith and other similar concepts, is the contention of defendants-appellants that they are entitled to damages commensurate with those awarded in cases of malicious prosecution. The gist of the argument in this respect may be subdivided into two aspects. One addresses itself to the application for the patent, that plaintiff knew, or should have known, that it could not get a valid patent and that it was guilty of various departures from honesty, or of subterfuge in obtaining the patent. The second aspect of this argument is that, at the very least, plaintiff-appellee was guilty of bad faith in having failed to conduct various tests, prior to the institution of the law suit, to analyze the basis for its infringement claim. Defendants-appellants contend that plaintiff-appellee knew there was no infringement and brought the action out of malice as an economic lever against a competitor.

“The absolute answer to the first aspect is, of course, the irrefutable FACT that plaintiff-appellee was granted a patent and brought the suit on the patent. As pointed out in its briefs, a patent carries with it a presumption of validity. What more needs to be said on this particular point we are at a loss to know. How it got the patent, or what it thought about its validity, these questions, in our opinion, have no proper place in a consideration of malice or bad faith on plaintiff-appellee’s part in bringing this infringement action against defendants-appellants. We therefore eliminate this aspect from further consideration.”

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U. S. PATENT OFFICE

JAN 29 1958

DIVISION 19



Appendix, Part 6 (see Brief, p. 83)
IN THE UNITED STATES PATENT OFFICE

In re Application of)
)
FRANK J. ANDERSON)
Serial No. 630,618) Division 30
Filed December 26, 1956)
For ROTARY KILN CONSTRUCTION)

A F F I D A V I T

DISTRICT OF COLUMBIA, ss:

I, LLOYD W. RENTSCH, being duly sworn, depose and say,
as follows:

1. I hold the Degree of Bachelor of Arts in Geophysics
from the University of California, at Berkeley, California.

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2. Since 1949, I have been employed by the Monolith Por
Midwest Company, the assignee of the above noted Anderson appli-
cation for United States Letters Patent, Serial No. 630,618, in
the capacity of consultant on various phases of this corporation's
work, and since 1955, I have been concerned with ^{detailed} research and
study on behalf of this corporation pertaining to rotary kilns.

3. I have studied extensively performance records for
rotary cement kilns, and have reviewed carefully various technical
and trade publications pertaining to rotary cement kilns and to
the linings used in such kilns. I have operated a rotary cement
kiln for experimental purposes.

4. I have studied in great detail the specification and
claims of the above noted Anderson application for United States
Letters Patent, Serial No. 630,618, and am thoroughly familiar
with the contents thereof.

5. I have made a study of the production of a rotary cement kiln operated by the above company over a period of several years. During this period, three types of linings have been employed in the burning zone of this kiln, to wit:

Type A - Lining made up predominantly of high alumina bricks without shims.

Type B - Lining made up predominantly of ordinary magnesite bricks and standard metal shims. Bricks were disposed in full contact with the metal shell of kiln. Shims were disposed between bricks without overlapping of joints between bricks. Shims contacted metal shell along their outer edges.

Type C - Lining constructed predominantly in accordance with Anderson application. Bricks were ordinary magnesite bricks disposed in full contact with metal shell. Shims were disposed between bricks so as to extend across joints, and the shims were staggered with respect to each other. Shims had metal members engaging the hot faces of the bricks on the interior of the lining. The shims were spaced away from the shell wall and were not attached to the shell wall.

6. During the period indicated in paragraph 5 several changes were made in the kiln which might effect the rate of production in this kiln to what I consider a minor extent. In addition, various other factors, such as details of kiln operation tend to affect the rate of production of any rotary kiln. During

Illustration C (see Brief, p. 7)

this period, the average rates of production of this kiln in barrels of cement clinker per operating day, when various linings as indicated in paragraph 5 were employed, were approximately as follows:

Type A liner	-	2680
" B "		2480
" C "		2710

In my opinion the changes in these averages largely represent a comparison of production rates with these types of linings in this kiln as fairly as is reasonably possible at the present time.

7. I have also studied the life spans of the various linings described above in this kiln. The Type B lining showed a very material improvement in life span as compared to the Type A lining. The Type C lining embodying the Anderson invention, in turn, showed a substantial improvement in life span over the Type B lining. The magnitude of this latter improvement is presently difficult to evaluate with precision on the basis of the evidence now available. However, sufficient evidence is available to justify an estimate that the Type C lining in this kiln in accordance with the Anderson invention has an average life span which is about 100% longer than the average life span of a Type B lining composed of magnesite bricks and standard metal shims.

8. Consequently, from actual production data and observations, I can state that the Anderson linings have shown substantial improvements in both production capacity and life span. The making of an estimate of the economic value of these improvements is complicated by variations in the cost of producing and the value of cement clinker and by certain variables in the practices employed in replacing burned out portions of kiln linings. However, my study of the operations of the kiln

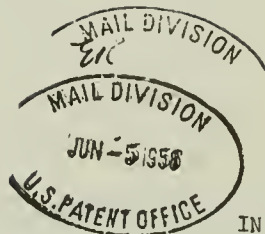
mentioned above leads me to believe that the use of the Anderson invention in that kiln has been worth substantially in excess of \$75,000 per year to my employer.

Joseph W. Reitsch

Subscribed and sworn to before me this 29th day of
January, 1958.

Francis C. Marcelino
Notary Public

(see I)
My Commission expires Nov. 31, 1960



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U. S. PATENT OFF

JUN 11 1958
DIVISION 19

IN THE UNITED STATES PATENT OFFICE

FRANK J. ANDERSON :

SERIAL NO.: 630,618 :

FILED: DECEMBER 26, 1956 :

DIVISION 19

FOR: ROTARY KILN CONSTRUCTION:

A F F I D A V I T

STATE OF CALIFORNIA)
) SS:
COUNTY OF LOS ANGELES)

I, LLOYD W. RENTSCH, being duly sworn depose and say as follows:

1. I am the Affiant identified in the affidavit dated January 29, 1958 filed in the United States Patent Office in connection with the above noted application January 29, 1958.
2. I have made a series of calculations based on the heat conductivity of kiln linings utilizing (1) basic magnesite brick with conventional iron shims extending completely to the shell of a rotary kiln, and (2) utilizing basic magnesite brick and iron shims spaced from the metal shell of a rotary kiln as defined in the above noted patent application.

My calculations indicate that in the order of a tenth of one per cent or less of the total heat employed in a conventional rotary kiln would be saved to do useful "work" in a kiln during normal operation of it by spacing the shims from the shell of a rotary kiln as indicated in this Anderson application instead of extending these shims to the kiln shell.

3. In my opinion one skilled in the art of the operation of rotary kilns and in particular cement kilns would normally expect the total production from such a kiln to be proportional to the amount of heat available within the kiln, although the production in a kiln is related to a number of factors besides the amount of heat available within a kiln. In other words, one would normally expect that a small increase in the amount of heat liberated within a rotary kiln would cause a corresponding proportional increase in the production of a kiln.

4. The data given in my earlier affidavit dated January 29, 1958 shows an increase in kiln production with the Anderson shims approximately thirty times greater or more than one would normally expect on the basis of the calculations indicated above and on the basis of the general consideration that any increase in the amount of heat available in a rotary kiln will cause a proportional increase in kiln production.

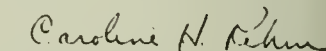
5. This increase in kiln production achieved using the Anderson shims as defined in this application is considered by myself and by others affiliated with the assignee of this application to be completely unexpected and to be very important commercially.

6. I believe that the increase in kiln production indicated here is a direct result of the spacing of metal shims employed in a kiln lining from a kiln shell as indicated in claims 20, 21, 25 and 26 of this Anderson application and that this increase in kiln production clearly evidences that the role of a lining as a heat transfer media within a rotary kiln is unexpectedly and advantageously changed using structures as defined in these claims.

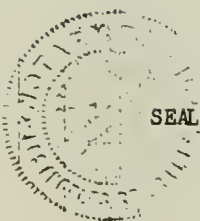
7. I believe that linings for rotary kilns as defined in claims 20, 21, 25 and 26 clearly possess all the elements of a very meritorious and patentable invention


Lloyd W. Rentsch

Sworn to and subscribed before me this 3 day
of June, 1958.


Notary Public

My Commission Expires July 25, 1960



Appendix, Part 5 (see Brief, p. 77)

Hoge Warren Zimmerman Co. v. Nourse & Co. (6 Cir. 1961) 293 F.2d 779 at 784:

“Related to the above, since exceptional circumstances have been interpreted as incorporating concepts of fraud, malice, bad faith and other similar concepts, is the contention of defendants-appellants that they are entitled to damages commensurate with those awarded in cases of malicious prosecution. The gist of the argument in this respect may be subdivided into two aspects. One addresses itself to the application for the patent, that plaintiff knew, or should have known, that it could not get a valid patent and that it was guilty of various departures from honesty, or of subterfuge in obtaining the patent. The second aspect of this argument is that, at the very least, plaintiff-appellee was guilty of bad faith in having failed to conduct various tests, prior to the institution of the law suit, to analyze the basis for its infringement claim. Defendants-appellants contend that plaintiff-appellee knew there was no infringement and brought the action out of malice as an economic lever against a competitor.

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JAN 29 1958

DIVISION 19



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5. I have made a study of the production of a rotary cement kiln operated by the above company over a period of several years. During this period, three types of linings have been employed in the burning zone of this kiln, to wit:

Type A - Lining made up predominantly of high alumina bricks without shims.

Type B - Lining made up predominantly of ordinary magnesite bricks and standard metal shims. Bricks were disposed in full contact with the metal shell of kiln. Shims were disposed between bricks without overlapping of joints between bricks. Shims contacted metal shell along their outer edges.

Type C - Lining constructed predominantly in accordance with Anderson application. Bricks were ordinary magnesite bricks disposed in full contact with metal shell. Shims were disposed between bricks so as to extend across joints, and the shims were staggered with respect to each other. Shims had metal members engaging the hot faces of the bricks on the interior of the lining. The shims were spaced away from the shell wall and were not attached to the shell wall.

6. During the period indicated in paragraph 5 several changes were made in the kiln which might effect the rate of production in this kiln to what I consider a minor extent. In addition, various other factors, such as details of kiln operation tend to affect the rate of production of any rotary kiln. During

Illustration C (see Brief, p. 7)

this period, the average rates of production of this kiln in barrels of cement clinker per operating day, when various linings as indicated in paragraph 5 were employed, were approximately as follows:

Type A liner	-	2680
" B "		2480
" C "		2710

In my opinion the changes in these averages largely represent a comparison of production rates with these types of linings in this kiln as fairly as is reasonably possible at the present time.

7. I have also studied the life spans of the various linings described above in this kiln. The Type B lining showed a very material improvement in life span as compared to the Type A lining. The Type C lining embodying the Anderson invention, in turn, showed a substantial improvement in life span over the Type B lining. The magnitude of this latter improvement is presently difficult to evaluate with precision on the basis of the evidence now available. However, sufficient evidence is available to justify an estimate that the Type C lining in this kiln in accordance with the Anderson invention has an average life span which is about 100% longer than the average life span of a Type B lining composed of magnesite bricks and standard metal shims.

8. Consequently, from actual production data and observations, I can state that the Anderson linings have shown substantial improvements in both production capacity and life span. The making of an estimate of the economic value of these improvements is complicated by variations in the cost of producing and the value of cement clinker and by certain variables in the practices employed in replacing burned out portions of kiln linings. However, my study of the operations of the kiln

mentioned above leads me to believe that the use of the Anderson invention in that kiln has been worth substantially in excess of \$75,000 per year to my employer.

Joseph H. Katsch

Subscribed and sworn to before me this 29th day of
January, 1958.

Francis C. Mancillina
Notary Public

(seal)
My Commission expires Nov. 31, 1960



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U. S. PATENT OFF

JUN 5 1958
DIVISION 19

IN THE UNITED STATES PATENT OFFICE

FRANK J. ANDERSON :

SERIAL NO.: 630,618 :

FILED: DECEMBER 26, 1956 :

DIVISION 19

FOR: ROTARY KILN CONSTRUCTION:

A F F I D A V I T

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS:

I, LLOYD W. RENTSCH, being duly sworn depose and say as follows:

1. I am the Affiant identified in the affidavit dated January 29, 1958 filed in the United States Patent Office in connection with the above noted application January 29, 1958.

2. I have made a series of calculations based on the heat conductivity of kiln linings utilizing (1) basic magnesite brick with conventional iron shims extending completely to the shell of a rotary kiln, and (2) utilizing basic magnesite brick and iron shims spaced from the metal shell of a rotary kiln as defined in the above noted patent application.

My calculations indicate that in the order of a tenth of one per cent or less of the total heat employed in a conventional rotary kiln would be saved to do useful "work" in a kiln during normal operation of it by spacing the shims from the shell of a rotary kiln as indicated in this Anderson application instead of extending these shims to the kiln shell.

3. In my opinion one skilled in the art of the operation of rotary kilns and in particular cement kilns would normally expect the total production from such a kiln to be proportional to the amount of heat available within the kiln, although the production in a kiln is related to a number of factors besides the amount of heat available within a kiln. In other words, one would normally expect that a small increase in the amount of heat liberated within a rotary kiln would cause a corresponding proportional increase in the production of a kiln.

4. The data given in my earlier affidavit dated January 29, 1958 shows an increase in kiln production with the Anderson shims approximately thirty times greater or more than one would normally expect on the basis of the calculations indicated above and on the basis of the general consideration that any increase in the amount of heat available in a rotary kiln will cause a proportional increase in kiln production.

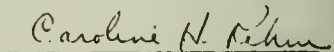
5. This increase in kiln production achieved using the Anderson shims as defined in this application is considered by myself and by others affiliated with the assignee of this application to be completely unexpected and to be very important commercially.

6. I believe that the increase in kiln production indicated here is a direct result of the spacing of metal shims employed in a kiln lining from a kiln shell as indicated in claims 20, 21, 25 and 26 of this Anderson application and that this increase in kiln production clearly evidences that the role of a lining as a heat transfer media within a rotary kiln is unexpectedly and advantageously changed using structures as defined in these claims.

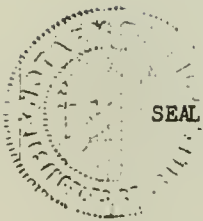
7. I believe that linings for rotary kilns as defined in claims 20, 21, 25 and 26 clearly possess all the elements of a very meritorious and patentable invention


Lloyd W. Rentsch

Sworn to and subscribed before me this 3 day
of June, 1958.


Notary Public

My Commission Expires July 25, 1960





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#17
U. S. PATENT OFFICE

JUN 8/8 1958

DIVISION 19

IN THE UNITED STATES PATENT OFFICE

FRANK J. ANDERSON :

SERIAL NO.: 630,618 :

FILED: DECEMBER 26, 1956 :

DIVISION 19

FOR: ROTARY KILN CONSTRUCTIONS:

A F F I D A V I T

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS:

I, LLOYD W. RENTSCH, being duly sworn depose and say as follows:

1. I am the affiant identified in the affidavits dated January 29, 1958 and June 3, 1958 filed in the U. S. Patent Office in connection with the above noted application.

2. In the course of my employment reports reached me of a difference in the manner in which the rotary cement kiln of the assignee of this application operated using different types of linings in the burning zone of the kiln, and specifically (1) burning zone linings of basic magnesite brick with conventional iron shims extending completely to the shell of a rotary kiln and (2) burning zone linings utilizing basic magnesite brick and iron shims spaced from the metal shell of a rotary kiln as defined in the above noted patent application. For

convenience these two types of linings are designated as (1) conventional or full shims and (2) Anderson shims.

3. The term "burning zone" is frequently used so as to designate the region within a rotary kiln where the highest temperatures are encountered and where the bricks used in the lining are of the highest practical refractory character. Most frequent brick replacement occurs within this area. Although the term "burning zone" may be used in a broad sense so as to designate the whole lower end of a rotary kiln, this is considered improper because of the manner in which heat is liberated within a kiln and because of the cooling effect of gases drawn in through the lower end of the kiln.

For these reasons the term "burning zone" is used in this affidavit so as to designate the part of a rotary cement kiln extending generally between the nose and feed rings formed from material passing through the kiln during its operation. Within this area or region the highest temperatures in a kiln are achieved, and a lining of the highest available refractory character is used. Most frequent brick replacement also occurs in this area or region. All calculations referred to in this and in my preceding affidavit pertain to the use of burning zone linings. As an example of what is meant by the term "burning zone" in a kiln reference is made to a kiln operated by the assignee of this application. This

kiln is approximately 330 feet long and has a burning zone which is slightly less than 35 feet in length spaced from the lower end of the kiln by a distance of about 20 feet.

4. In a rotary cement kiln the burning zone of the kiln itself is a critical region of the kiln. It is in this region that maximum temperatures must be developed in order to cause the final reactions leading to the formation of cement compounds, such as dicalcium silicate and the like. Once these final reactions commence they are exothermic in nature. Because of these factors, Anderson shims as set forth in the above noted Patent Office action are primarily useful when installed in the burning zone of a kiln. The lining within the burning zone of a rotary cement kiln is well known to serve as a heat transfer media, and must satisfactorily perform in this regard if high production from a rotary cement kiln is to be achieved.

5. According to reports reaching me as indicated in paragraph 2 above, the burning zone linings in the rotary kiln using full shims appeared to quench the exothermic reactions of the material being burned to cement clinker within the kiln as these linings passed beneath this material during kiln rotation. These same reports indicated that with the kiln having a burning zone lining using the Anderson shims the exothermic reactions proceeded in a normal manner and no apparent quenching of such material took place. These reports were based upon visual observation and were not quantitative.

6. In order to investigate these reports and their importance I made the calculations indicated in my preceding affidavit dated January 29, 1958 filed in connection with this application. In this affidavit it was indicated in paragraph 2

"that in the order of one-tenth of one per cent or less of the total heat employed in a conventional rotary kiln would be saved to do useful 'work' in a kiln during normal operation of it by spacing the shims from the shell of a rotary kiln as indicated in this Anderson application instead of extending these shims to the kiln shell."

Thus, I indicated in my earlier affidavit that one would only expect to save an extremely small proportion of the total heat employed in a rotary kiln by using Anderson shims instead of full shims.

7. In the quotation from my earlier affidavit given above the term "total heat" was intended to designate heat liberated within a rotary kiln due to the burning of fuel and oxygen. This is considered by me to be a conventional designation although the term "total heat" in a rotary kiln can, of course include sensible heat contribution from the raw material slurry, secondary air, primary air and in some degree even the sensible heat of the fuel itself. All the calculations indicated hereafter are based on the definition of the term "total heat" given here. The term "useful 'work'" indicated in this quotation from my earlier affidavit is intended to designate heat within the kiln which is directly employed in the formation of cement clinker.

8. The operation of a rotary kiln such as, for example, a cement kiln is complex in spite of the relative simplicity of such apparatus. Thus, in the manufacture of cement the operation of a rotary kiln will depend upon a large number of factors including chemical and physical reactions which are all not well explained or fully understood at the present time. Any heat balance for a rotary kiln must, therefore, by necessity, be essentially an approximation and must vary with a number of factors such as, for example, the thickness of the lining within a rotary kiln at any specific time, the thickness of the coating on the burning zone lining, the nature of this coating, the material being treated within the kiln, the speed of kiln rotation, the air temperature outside of a kiln, air movement outside of the kiln and many others. Principally, because of these enumerated factors the heat loss by radiation in a rotary kiln will not be constant, but will vary within certain limits.

9. In order to determine by calculations approximately how much heat would be saved by using the Anderson shims instead of full shims, it was first necessary to determine how much heat is normally lost from a rotary kiln by radiation. This is because such heat loss is, in effect, the heat loss through the lining in a rotary kiln.

The text "Portland Cement" by Meade, Third Edition, 1926, Chemical Publishing Company, Easton, Pennsylvania, indicates on page 305 that in the examined case the shell radiation loss from a kiln was 10.5% of the total heat

developed in the kiln from the fuel burned in it. The booklet published by the Allis-Chalmers Company of Milwaukee, Wisconsin, entitled "Rotary Kiln for Cement, Lime and Chemical Plants" bearing the Designation Number 07B6368A on page 19 indicates that less than 8.5% of the total heat from fuel in a rotary kiln is lost by shell radiation.

The article entitled "The Thermal Efficiency of the Rotary Cement Kiln" by Hans Gygi appearing in the November and December, 1937 and February, March, April June and July, 1938 issues of the publication "Cement and Lime Manufacture" published by Concrete Publications, Ltd., 14 Dartmouth Street, London S.W.1, Great Britain, gives figures from which it can be calculated that about 11.6% of the total heat supplied by the fuel within assignee's rotary kiln is lost by shell radiation. These calculations make allowance for assignee's higher exit gas temperature and slurry moisture requirements. Because of the comparatively high kiln shell temperatures recited in this Gygi article it is believed that the percentage obtained from it represents a higher heat loss by radiation than is normal.

10. In order to determine what proportion of the radiation loss from a rotary cement kiln occurs in the burning zone it is necessary to determine approximately the length of the burning zone. In the Monolith kiln mentioned in paragraph 3 the burning zone is about 10.6% of the length of the kiln. Since the kiln length referred to in the Meade text is 125 feet long, proportionately, it would appear that the burning zone in it is about 13.3 feet long.

By multiplying the 439,600 Btu heat loss in zone 2 of the Meade reference corresponding to approximately the location to the burning zone of a rotary kiln by a factor obtained by dividing 13.33 by 12.5 (the length of this zone 2), and then dividing this number by the total heat loss by radiation given in the Meade text, it is apparent that about 12% of the total heat loss by radiation in the kiln cited in the Meade text occurs in the burning zone. Multiplying this 12% times the 10.5% total heat loss by radiation specified in the Meade text it is apparent that about 1.26% of the total heat in the Meade kiln is lost as burning zone shell radiation.

Using the same 12% figure obtained from the calculations above and multiplying this times the approximate 8.5% radiation loss specified in the Allis-Chalmers publication, it is apparent that less than 1.02% of the total radiation loss occurs in the burning zone.

In order to determine the heat loss in the burning zone by radiation using the figures in the Gygi text above, reference was made to Table 5 appearing on page 318 of the December, 1937 issue of this publication. From an examination of this table and the text of the accompanying article it appeared that the burning zone of the kiln specified started approximately at the point 19 and extended to approximately the point 22. This distance also corresponds to the length of the burning zone in the kiln noted in paragraph 3.

The heat loss in this length is about 17.9% of the radiation loss in the kiln reported on by Gygi. When this figure is multiplied by the 11.6% given in paragraph 9, it is apparent that about 2.07% of the total heat in Gygi kiln is lost by shell radiation in the burning zone. This figure is considered to be somewhat high because of the higher kiln shell temperature as indicated above.

11. The thermal conductivities of magnesite refractory bricks and of metals such as various grades of steel are well known to decrease at elevated temperatures as can be determined by reference to page 339 of the book "Modern Refractory Practice" published by Harbison-Walker Refractories Company, Pittsburgh, Pa., copyright 1950, and by reference to Perry's "Chemical Engineering Handbook" Third Edition, McGraw-Hill Book Company, New York, New York, 1950, page 456.

Conductivity calculations were made as to the conductivity of magnesite brick between the temperature of 2400° F and 600° F using the values cited in Table XXX on page 339 of the Harbison-Walker text cited above, and the formula 2 as given on page 340 of this text. The temperature of 2400° F was used here because this is considered to be approximately the temperature of the hot face of the brick beneath the coating within the burning zone of a rotary kiln. The temperature of 600° F was used here because it is believed that this represents a normal temperature of the cool face of the brick in the same area within a rotary kiln resting against the interior of the kiln shell.

The thermal conductivity for mild steel is given on page 456 of the Perry text cited above; the conductivity at 1112° F was used. The thermal conductivity of mild steel was employed in the calculations because the Anderson shims have been manufactured from mild steel and because it is believed that conventional or full shims for use in rotary kilns are also manufactured of this material. It is considered that the value for thermal conductivity given in the Perry Text is not completely accurate in these calculations because of the temperature variations between the inside and the outside of a burning zone kiln lining as indicated above, and that a slightly lower thermal conductivity should be used. However, due to the lack of a more complete table indicating the effect of temperature upon thermal conductivity this value was employed.

In these calculations the thermal conductivities of lining sections 6 inches wide containing (1) magnesite brick and full shims of mild steel 1/16 wide and (2) magnesite brick with no shims were compared. The 6 inch width employed here was used because this corresponds to the usual brick width employed by the assignee of this application in the rotary kiln indicated in paragraph 3 above. The 1/16 inch width here was used because the Anderson shims have been manufactured having approximately this width or thickness and because it is believed that conventional full shims are also manufactured so as to have the same dimension.

The thermal conductivity in case (1) is calculated to be 25.8 Btu /hr. / ft.² of lining / °F /inch thickness; in case (2) this was 23.4 in the same units. Thus, in

the latter case there is a reduction of 9.3% in the heat transmitted through the lining.

Because the Anderson shim is a partial shim deliberately spaced from a kiln shell a lining using this shim will obviously have a conductivity intermediate these two values. Therefore, the difference between case (1) and an Anderson shim installation with magnesite brick will be less than the noted 9.3%.

12. In order to determine the reduction of heat transmitted through a lining in comparison to the total heat in a kiln by using Anderson shims instead of full shims, the 9.3% figure noted at the end of paragraph 11 above was multiplied by the heat loss by burning zone radiation obtained by various methods as given in paragraph 10 above. From this it appears that heat saving of about .12% could be achieved of the total heat in the Meade kiln and that a saving of about .09% of the total heat could be achieved in kilns operating as indicated in the Allis-Chalmers publication, and that a heat saving of about .19% of the total heat in the Gygi kiln could be achieved. Those are all in the order of 1/10 of one per cent; and as the Anderson shims in comparison to full shims are less than the 9.3% noted in paragraph 11, the heat saved by using them is "in the order of 1/10 of 1% or less".

13. In order to check the results of the calculations set forth in paragraph 10 another group of calculations were made based upon the Gygi article noted. From the curve designated as Fig. 21 appearing on page 31 of the

February, 1938 issue of "Cement and Lime Manufacture" it was calculated that about 22% of the total heat transferred in the Gygi kiln was transferred in the burning zone of this kiln. As indicated in Fig. 29 appearing on page 150 of the July, 1938 issue of "Cement and Lime Manufacture" about 3.8% of this 22% is lost by radiation. By multiplying these two figures it is apparent that about 0.835% of the total heat transferred in the kiln is lost through burning zone radiation. This confirms the various values set forth in paragraph 10 above.

14. A one-tenth of one per cent increase in assignee's kiln production would be about three barrels of cement per day. The actual increase in kiln production as indicated in my prior affidavits is in the order of thirty times or more greater than this figure.

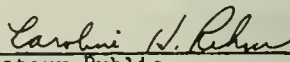
15. Although the calculations given here are somewhat complex, they constitute an elementary approach to the complete problem. A number of factors not considered in these calculations, such as composite conductivities through the coating, lining, interface resistance, and shell, specific amounts of shims used and the like will vary the actual results, but do not invalidate the conclusions available through these calculations.

16. The calculations indicated in this affidavit and the actual increase in production as indicated above clearly demonstrate to me that the results achieved using Anderson shims with basic brick are very advantageous and are completely unexpected. In my opinion these results

can be explained only by considering that the role of a lining as a heat transfer media in a burning zone of a rotary kiln is changed by using the Anderson shims as defined in claims 20, 21, 25 and 26 of this application.


Lloyd W. Rentsch

Sworn to and subscribed before me this 25 day of June, 1958.


Notary Public

SEAL

My Commission Expires July 25, 1960

Appendix, Part 7 (see Brief, p. 88)

The unexpected results affidavits, of course, speak for themselves and the substance thereof will be apparent to this Court. However, we would like to point out the principle content thereof and discuss in some detail the testimony and exhibits bearing on the aspect of the fraud issue. The first affidavit stated that Rentsch was employed by Monolith, had been concerned with detailed research and study pertaining to rotary kilns, had made a study of the production of a rotary cement kiln operated by Monolith over a period of several years, three types of linings (Type A, B and C) had been employed in the burning zone of this kiln, several changes were made in kiln operation which might affect the rate of production which he considered to be minor factors, that in his opinion the changes in average rates of production of barrels of cement clinker per operating day (Type A - 2680, Type B - 2480, and Type C - 2710) largely represented a comparison of production rates with these types of linings, and that he estimated that the Type C lining had a considerably longer average life span, i.e., about 100% longer than Type B. The Type A lining had alumina bricks without shims, the Type B lining had basic brick and full shims, and the Type C lining had basic brick and shims supported on the brick and spaced away from the kiln shell. In the second affidavit, he stated that he had made a series of calculations to determine the expected increase in production based on the reduction of heat transfer to the kiln shell as a result of short shims, and concluded that the actual increase set forth in his first affidavit was thirty or more times greater than what would be the expected increase. In his third affidavit, he went into a detailed discussion of the calculations, explained that the expected increase based on the reduction in

transfer of heat would be about three barrels of cement per day; whereas, the actual increase as indicated in his prior affidavits was in the order of thirty times or more greater than this figure, i.e., ninety or more barrels per day. Rentsch felt that the increase was on the order of one hundred barrels per day (Tr. 11165; Tr. 11466).

Oberg of Monolith stated it to be his opinion that the use of short arcuate shims in the 1954 lining at Monolith's Laramie plant doubled lining life and increased production by 100 barrels per day (Tr. 5223). Oberg, significantly, earned the respect of the District Court (Memo of Decision, p. 129, R. 3688) as an honest witness. Johnson of Monolith had been told that there was an increase of 100 barrels per day (Tr. 8526). Rentsch testified that his study of production records convinced him that an increase in production of 100 barrels per day was attributable to the short-shimmed lining (Tr. 11466-11467; see also Ex. 1062, p. 1); he also stated that Anderson told him that the use of the short-shimmed lining resulted in 100 barrels per day increase (Tr. 1823; Tr. 1973). Rentsch further stated that there was a total production gain of 230 barrels per operating day after the short-shimmed lining was installed at Laramie, and he ascribed 100 barrels per day to short shimming (Tr. 11165; Tr. 11466). O'Brien, Monolith's Patent Attorney, did not feel that the production figures precisely bore out Rentsch's opinion of a thirty times increase in production, but felt that the opinion was valid and a close approximation (Ex. OI).

On the other hand, several Monolith documents (Ex. 679/FA, Ex. JY, and Ex. AU) indicated a 19 barrel per day increase in production was attributable to the spaced shim installation at the Laramie plant.

The first of these documents (Ex. 679/FA) is a letter dated January 3, 1955 by Williams of Monolith indica-

ting that less fuel was required because of the use of short shims, and the fuel saving accounted for 19 barrels of clinker per day increase. Williams stated that this figure was calculated by Potter of Monolith (Tr. 1394), but stated that the 19 barrels was merely a calculated figure based on heat savings only (Tr. 1412). The calculations from which this figure was derived did not take into account the effect of down time (Tr. 1412-1413), nor was the figure computed on a long term basis.

The 19 barrels per day figure again appeared in an undated report alleged to have been prepared by Anderson (Ex. AU). However, Ex. 1016 comprises a cover memo by Potter together with a copy of Ex. AU indicating that Potter and not Anderson prepared Ex. AU. Rentsch did not believe that Ex. AU was a report by Anderson (Tr. 11227, Tr. 11233; Tr. 11257; Tr. 11289). Therefore, there is no evidence from which knowledge on the part of Rentsch, either directly or indirectly through Anderson, of Ex. AU could be inferred.

Exhibit JY, a letter from Potter to Williams dated April 14, 1956, also attributes increases in production of 114 barrels per day to use of carbon dioxide and of 218 barrels per day to use of oxide residue. Rentsch stated that prior to trial he was not aware of Ex. 679/FA or JY (Tr. 11150-11151). After reviewing these exhibits, Rentsch stated that they did not change his opinion (Tr. 11451) that the efficiency of the kiln lining was largely due to the fact that it was composed of short shimmed brick (Tr. 11474-11475).

Irrespective of whether or not the increase in production was 19 barrels per day or 90 to 100 barrels per day, the increase in production to be expected was three barrels per day as calculated by Appellees' expert witness L. J. Lyons (Tr. 11714), which is in accord with the expected result calculated by Rentsch as set forth in his third affidavit (Ex. 2/V, p. 172).

Considering for the moment other changes which were made in the kiln, Rentsch stated in his first affidavit, “. . . several changes were made in the kiln which might effect the rate of production in the kiln to what I consider a minor extent.” In addition, various other factors, such as details of kiln operation tend to affect the rate of production of any rotary kiln. All the evidence is not in accord as to the precise effect on production as a result of each change. Oberg and Rentsch did not feel that the other changes would cause increases in production requiring alteration of their opinions of the results attributable to the short shimmed lining (Tr. 5249-5251; Tr. 11451). Rentsch did not think the conclusion reached in Exhibits FA and JY was a fair one since a certain increase in production was first attributed to the lining, then a certain increase to CO_2 , and then the remainder was concluded to be due to the oxide residue (Tr. 11465).

Rentsch testified that aside from the usual variables, there were actually four which could have affected production, and these were: (1) the use of the short shimmed lining, (2) use of carbon dioxide (CO_2), (3) use of oxide residue, and (4) use of a new draft fan (Tr. 11139-11140). He thought the factors other than the lining made some contribution, but thought the major contribution was due to the latter (Tr. 11149; Tr. 11140). He described the affect of the other variables as being “minor” in his first affidavit because he thought this was the fairest way the information could be described to the Patent Office (Tr. 11144). It was Rentsch’s opinion that the effect of oxide residue was negligible in the calculations and that CO_2 was not important because it was introduced only after the first six months of operation of the Laramie kiln. Although a precise evaluation of these factors was not possible, he looked at the whole

picture in making his evaluation (Tr. 11462-11463). He used a three year time period during which various changes took place, taking into account these changes each year, in arriving at his conclusions (Tr. 11470-11471). He did not know prior to trial that Potter of Monolith assigned substantially all of the increase in production to oxide and CO₂ (Tr. 11150; Ex. JY). Rentsch felt there was some economic benefit to the use of CO₂ (Tr. 11069) because it reduced cost of production, but he did not think it caused an important, much less unexpected, increase in production (Tr. 11090-11091).

Furthermore, Rentsch concluded that the effect of the draft fan was minor because it was only used late in the period of operation of the kiln (Tr. 11432). He contended that the greatest possible improvement due to the oxide residue would have been only 11 or 12 barrels per day (Tr. 11422). One reason he attributed the increase to shims rather than residue was that in the Type A lining (no shims) production was substantially the same as the Type C lining (short-shimmed) and it did not use residue; then when the lining was changed to full shims (Type B) production dropped, and when changed to spaced shims (Type C) production returned (Tr. 11469). In view of this, he concluded that the governing and principal factor was the change in lining characteristics rather than the residue (Tr. 11469). Oberg testified that the amount of oxide residue was insignificant in the first six months of 1954, and carbon dioxide was not used until July or August 1954 (Tr. 5249-5250); the Laramie field test began in January, 1954.

Although a short shimmed lining was used at Appellant's Monolith, California plant, no discernible change in production was observed (Tr. 11463). Rentsch gave consideration to this, but thought the lack of production

increase was attributable to reasons other than the lining and use of CO₂. He felt that the burning conditions at this plant masked the value of the lining because of temperature variation (Tr. 11465). However, Appellant continued to use a short shimmed lining at the Monolith plant (Tr. 1195; Tr. 1564), even though the same production increase was not observed there.

We also should note that Dr. Bogue and Mr. Bechtold were retained in 1960 by Appellant to carry out tests to determine the benefits obtained by the use of a lining constructed from bricks having longitudinal short shims (arcuate short shims were used at Laramie) (Tr. 1623-1624; Tr. 1631-1634; Tr. 2463-2464). Two similar kilns at the Monolith plant in California were lined with the same types of brick, one using short longitudinal shims spaced about one inch from the shell and the other with full longitudinal shims (Tr. 1631-1634; Tr. 2467). A report dated October 2, 1963 (Ex. 585) was prepared by Bogue and Bechtold (Tr. 1639-1640; Tr. 2465). Both Bogue and Bechtold felt that the short shimmed installation gave better results (Tr. 1634; Tr. 2485; Tr. 2489-2495; see also Ex. 585, p. 32-34). Bechtold testified that the test generally confirmed Rentsch's conclusions about the Laramie installation, but not quantitatively (Tr. 3559-3560). The kiln having the short shimmed lining lasted considerably longer and thus had a substantially greater production output (Ex. 585, p. 8). Based on the number of days both kilns operated simultaneously (and thus forgetting the increase in production because the lining lasted longer), the one with the short shimmed lining had a twelve barrels per day greater output (Ex. 585, p. 9). However, because several variables between the two kilns were not carefully controlled, it was concluded that the test results were not conclusive (Memo of Decision, p. 115, R. 3674).

"INITIAL" WICKEN AFFIDAVIT
Exhibit OX

3. Experience: During the years 1940 to 1951 I was employed by Northwest Magnesite Company, a subsidiary of the Harbison-Walker Refractories Company. From 1940 to 1945, I was employed as an engineer and superintendent in Development and Operations at the Chewelah, Washington plant of Northwest. From 1945 to 1947, I was employed in the Engineering and Development Department at the Pittsburgh Office in Pittsburgh, Pennsylvania. From 1948 to 1951 I was employed as manager of the Cape May, New Jersey sea water magnesite manufacturing plant of

lithium chemical plant. From 1956 to the present time I have been employed in the Technical Sales Department of the Harbison-Walker Refractories Company at Pittsburgh, Pennsylvania. Each of the above positions has brought me into close contact with rotary kiln constructions and operations.

1. I consider myself qualified to state what were conventional practices with respect to the use of refractories in rotary kilns such as are used in the cement and other industries in the early part of 1955 because of my education and experience as set forth in paragraphs 1 and 2 above.

2. In the early part of 1955 where conventional basic or non-acid brick were used in the burning zone of rotary cement kilns or other related kilns it was conventional practice to utilize metal plates or shims between such brick. In these cases the metal shims or plates were of approximately the same dimensions as the sides of the individual bricks employed and were located between the sides of individual bricks so as to extend from the hot face of such brick to the steel shell of the rotary kiln. It would have been contrary to the conventional practice in the industry and contrary to manufacturer's recommendations at this time to have installed such metal plates or shims with such brick so that they were deliberately spaced from the shell of a rotary kiln.

3. I am familiar with the Longacre U. S. Patent No. 2,230,142. This patent shows the use of an unusual brick shape which is designed so as to achieve the objective of insulating the major portion of such a brick from the shell of a rotary kiln. In my opinion this Longacre patent teaches achieving this objective by altering the usual shape of brick for use in rotary kilns rather

Northwest. From 1951 to 1955 I was employed by Foote Mineral Company as Manager of their Sunbright, Virginia lithium chemical plant. From 1956 to the present time I have been employed in the Technical Sales Department of the Harbison-Walker Refractories Company at Pittsburgh, Pennsylvania. Each of the above positions has brought me into close contact with rotary kiln constructions and operations.

4. As a result of my education and experience in the field of refractories, and in particular to the use of refractories in rotary kilns as employed in the cement and other industries, I consider myself qualified to state what were conventional practices in this field on February 1, 1955.

5. As of February 1, 1955 it was conventional practice where basic or non-acid brick were used in the burning zones of cement rotary kilns to utilize metal plates or shims with such bricks. In these cases the metal shims or plates were located between individual bricks and were full shims or plates so that they extended to or essentially extended to, the steel shell of rotary kilns. This was the ordinary practice in the industry and the recommended procedure on installation. A departure from this procedure; for example, the deliberate spacing of the shims away from the shell an appreciable distance, would have been uncommon practice.

6. I have read the Longacre U. S. Patent #2,230,142. The refractory structures shown in the Longacre Patent are designed so as to insulate the major portion of the refractories shown from the shell of a rotary kiln. Fundamentally, this objective is sought by altering the usual shape of brick used in rotary kilns rather than by purposefully employing a new pattern of steel plate application.

than by varying conventional industry practice with conventional basic or non-acid bricks as indicated in paragraph 4 above.

6. I am also familiar with the Griffith U. S. Patent No. 2,192,642 showing the use of corrugated or waffle shaped metal plates or shims designed to be located between conventional brick. In the early part of 1955 it was recognized that corrugated metal plates or shims as described in this Griffith patent should be used when it was desired to allow for expansion of conventional refractory brick. The metal corrugated plates or shims in the Griffith patent were driven in place as far as possible; in some few cases the corrugated plates or shims of the Griffith patent may not have extended completely to the metal shell of a rotary kiln because of problems of installing these shims. In these cases the amount of spacing away from the shell would have been minor and accidental to the purpose of the Griffith patent. Such spacing was considered undesirable since it was contrary to the established practice as indicated in paragraph 4 above, and was avoided to as great an extent as conveniently possible.

7. It is my opinion that the Griffith and Longacre patents referred to above, either alone or in combination with one another, do not show the concept of providing a rotary kiln lining using metal plates or shims deliberately spaced away from the metal shell of a rotary kiln between conventional basic or non-acid brick. Such a concept in the early part of 1955 was definitely contrary to conventional practice and recommendations of the refractory industry.

7. I have read the Griffith U. S. Patent #2,192,642 and I have observed installation in the field of these corrugated or waffle shaped metal plates or shims as described in this patent. On February 1, 1955 the industry practice in using the Griffith waffle or corrugated steel plates or shims was an effort in such installation to allow for the expansion of the hot face of the brick. These metal plates were driven to their fullest penetration but naturally not all of these metal plates would extend to the metal shell of the rotary kiln because of "wedge" considerations and the amount of spacing away from the shell in these cases would have been minor and accidental to the purposes of Griffith.

8. After studying the Griffith and Longacre patents referred to above, either alone or in combination, it is my opinion that these patents do not show to anyone skilled in the art of rotary kiln refractories the concept of providing for a rotary kiln lining utilizing conventional basic or non-acid bricks spaced from one another by metal plates or shims which are deliberately and uniformly spaced an appreciable extent away from the metal shell of a rotary kiln. Such concepts on February 1, 1955 was contrary to and against industry practice and recommendation. Nor do they show the use of metal plates or shims of such size and configuration as to make annular sections each of which extends past several brick in a ring. Usual practice is for each brick to have an individual plate separate from the plates of adjoining bricks.

. I am aware of the installation and performance of the Anderson shims as described in the aforementioned patent application with conventional basic brick at the Monolith Midwest Company plant at Laramie, Wyoming and I believe that the concept of deliberate spacing, as verified by the results of such installation, possesses all the elements of a meritorious and patentable invention.

Oscar M. Wicken /s/

Subscribed and sworn to before me this 11th day of September, 1958.

EAL Robert Beadling /s/

Robert Beadling, Notary Public
Pittsburgh, Allegheny County, Pa.
My Commission Expires September
11, 1961

9. I am informed on the original installation and performance of the Anderson Shim with conventional basic bricks at the Monolith Portland Midwest Company plant at Laramie, Wyoming and I believe such installations to show that the use of these shims with conventional basic or non-acid brick in a rotary kiln possesses all the elements of a meritorious and patentable invention.

Oscar M. Wicken /s/

Sworn to and subscribed before me this 25th day of August, 1958.

Robert Beadling /s/

Robert Beadling, Notary Public
Pittsburgh, Allegheny County, Pa.
My Commission Expires September
11, 1961

Appendix, Part 9 (see Brief, p. 96)

Included in this part of the Appendix is a further discussion of the evidence bearing on the Wicken affidavit matter. In Moore's reply to Freeman (Ex. 00) concerning Wicken providing an affidavit for Monolith, he further stated:

"Oscar Wicken and I have reviewed Mr. Anderson's description of his invention and to the very best of our knowledge, it does not conflict with any patents previously published or with any rotary kiln practice prior to February 1, 1955. I believe I mentioned that numerous devices for installing plates in the radial joints in such a way as to keep them away from contact with the steel shell have been employed from time to time. This is the first description or reference we have seen however to the use of curved plates in the joints between the rings."

In his deposition testimony Moore indicated he was not sure what he had in mind at the time in referring to "numerous devices for installing plates" (Tr. 11926). Wicken thought the "numerous devices" in Moore's letter (Ex. 00) were double linings, i.e., fire clay or high aluminum brick back of a basic section, asbestos insulation and shims having part removed leaving supporting legs which would rest on the shell (Tr. 11977-11978). Moore acknowledged that he referred the affidavit matter to Wicken (Tr. 11928; Tr. 11934), and stated that he reflected more of Wicken's thinking than his own in his letter (Ex. 00) of July 22, 1958 (Tr. 11928). Wicken recalled that Moore first introduced the subject of Monolith's patent application to him (Tr. 11967).

Moore recalled receiving from Freeman a copy of a paper entitled, "Use of Circular Steel Shims with

Basic Brick Linings in Kiln of Monolith at Laramie" (Ex. AU, Deposition Ex. D), and it was part of the material he turned over to Wicken (Tr. 11932). This paper described the Laramie Kiln lining practices and discussed the use of a basic brick lining there including circular or arcuate shims held approximately one and one-half inches from the kiln shell (Ex. AU, p. 3). Rentsch did not believe that a copy of the Anderson patent application had been supplied to Harbison-Walker (Tr. 12546). It was Wicken's impression that the fundamental thing Anderson was trying to patent was a circular shim (Tr. 11977), which seemed to be a departure from conventional practice (Tr. 11982). However, he did not recall in 1958 any specific installations in which shims had been withdrawn from the kiln shell an appreciable distance (Tr. 12000). Moore did not think he checked the contents of the "initial" affidavit (Tr. 11934), but did approve Wicken's signing (Tr. 11935).

With respect to the changes in the "revised" affidavit, Rentsch recalled that he discussed with Wicken revision as to form (Tr. 11349), and that there were words or phrases he wanted in the affidavit if Wicken agreed in order to get the best results out of the affidavit (Tr. 11351). Rentsch was sure that he cleared everything with Wicken (Tr. 11352). With reference to paragraph 8 of the "filed" affidavit, Rentsch did not remember why the change was made to indicate that Wicken was "aware" of the Laramie installation rather than "informed" thereof (Tr. 11363). Rentsch stated that Wicken agreed that deliberate spacing would be contrary to industry recommendations in February 1955, and a change was made in paragraphs 4 and 8 of the "filed" affidavit to accommodate his approval; Rentsch did not have any apprehension that Wicken misunderstood (Tr. 11369). In reference to the removal of the com-

ment concerning “annular” shims from paragraph 5 of the “initial” affidavit, Rentsch stated that they just wanted to say that Griffith and Longacre did not teach deliberate spacing, and Wicken agreed (Tr. 11373).

In his deposition testimony Wicken remembered that he had the telephone conversation with Rentsch, and as he recalled he thought Rentsch wanted some slight alteration in the affidavit in order to meet Patent Office requirements (Tr. 11991). He testified that he read through both of the affidavits and thought the second one was a virtual copy of the first (Tr. 11993; see also Ex. PH), but stated he was probably anticipating that the affidavit was pretty much the same as the first (Tr. 11993-11994). Wicken contended that he received the impression that the Patent Office had certain patterns that had to be followed, and understood that the documents would be essentially the same as to context (Tr. 12004-12005); he did not believe that Rentsch made reference to either specific additions or deletions (Tr. 12005-12006). But he also stated that he “paid pretty close attention to the whole document” (the revised affidavit) (Tr. 11994). Standard practice at Harbison-Walker would require that he submit affidavits to their legal department for review; he recalled submitting the “initial” affidavit, but did not recall whether or not he submitted the “revised” affidavit (Tr. 12007-12008).

There was extensive testimony by Wicken at his deposition in 1963 concerning his prior knowledge of spaced shims. The earliest discussion he could recall concerning withdrawing the shims from any type of kiln shell was prior to 1950 with respect to their Cape May, New Jersey, magnesite kiln as an internal matter between Harbison-Walker and Northwest Magnesite (Tr. 11948-11949). He knew that spaced shims had been proposed for exceptional installations (Tr. 12000; Ex. CG),

but did not know of specific installations in which shims had been withdrawn from the kiln shell an appreciable distance (Tr. 12000). He stated that although there are areas of similarity between different types of kilns (e.g., cement and magnesite), they are not alike (Tr. 12019-12021).

Wicken further stated at his deposition in 1963 that if Ex. CG had been before him, he did not know what he would have signed in 1958; he might have signed the affidavit, but thought he would make a point that it would apply only to circular (arcuate) shims (Tr. 12002-12003; Tr. 12017). He then contended that, strictly speaking, spacing except as applied to an "Anderson shim" was not novel in early 1955 (Tr. 12011). Ex. CG was an internal memorandum by Snyder of Harbison-Walker directed to Wicken and others at Harbison-Walker concerning Snyder's discussion with Rochow about their Cape May magnesite kiln, and concerning:

"Another method of installation of interest is to use plates possibly 1" shorter than the brick so that the plate between the brick does not touch the shell. This is usually accomplished by using plate the same size as you now use with a 1" 90° bend in one end. This bend would be on the inner-face so as to keep the plate from dropping down between the brick too far."

No specific installation was identified in the memo, nor was it clearly shown that the same referred to a specific non-secret installation of a short shimmed kiln lining.

We would also like to comment upon the more glaring defects in the findings pertaining to the Wicken matter. Finding No. 117 (R. 3746) refers to use of deliberate spacing being specifically called to Wicken's attention at the time he was asked to sign an affidavit. This ap-

parently refers to Moore's letter to Freeman (Ex. OO) commenting that "numerous devices for installing plates" were known; however, Wicken understood this to mean double linings (Tr. 11977-11978) and not the deliberate spacing of shims from the kiln shell. Also, Wicken was not asked by Appellant to sign the affidavit, but the same was referred to him by Moore of Harbison-Walker (Tr. 11928; Tr. 11934; Tr. 11967). Finding of Fact No. 117 (R. 3746) also implies that the filed affidavit alleged Wicken's knowledge of all the contents of the patent application itself; whereas no such statement is made in the affidavit. The affidavit did not set forth his review and study of the patent application as had been done by Rentsch (Ex. 2/V, p. 86) in his first unexpected results affidavit, but only stated that Wicken was aware of the installation and performance of the Anderson shims as described in the patent application. He was aware of the same. True, the phraseology used in this respect in his affidavit may be characterized as "weasel words" as was done with respect to affidavit allegations by the court in *Martin v. Ford Alexander Corp.*, (DC SD Calif. CD 1958) 160 F.Supp. 670; however, such terminology cannot so lightly be characterized as grossly false and misleading.

Finding No. 117 (R. 3746) also refers to the Wicken affidavit statement concerning the concept of deliberate spacing possessing all the elements of a meritorious and patentable invention. Even in light of Ex. CG (which at most merely implies that there may have been a use of short shims somewhere in some type of kiln, and which use may have been secret), we submit that there is not clear and convincing proof that when he signed his affidavits Wicken "knew positively that such 'deliberate spacing' of conventional longitudinal shims had, as of 1955, long been known and practiced in the lining

of rotary kilns..." (Finding of Fact No. 117(c), R. 3748).

Finding No. 118 (R. 3749) refers to "misstatements" inserted in the final affidavit. The final affidavit was discussed with Wicken by telephone, and Rentsch's cover letter (Ex. PD) transmitting the same to Wicken specifically referred to the revision of the affidavit as to form, and to the fact that other paragraphs had been paraphrased as was discussed by telephone. Wicken had an opportunity to review the revised affidavit. Finding No. 119 (R. 3749) states that Wicken was induced to sign the affidavit on the basis that it was "changed only" to meet Patent Office requirements as to form. The evidence discussed above clearly demonstrates that this is in error. This latter finding also refers to Wicken's failure to carefully read the final affidavit and failure to submit the same to the Harbison-Walker legal department; whereas, Wicken did carefully read the affidavit (Tr. 11994), and he was unable to recall whether or not he submitted the same to his legal department (Tr. 12007-12008).

Appendix, Part 10 (see Brief, pp. 113, 115, 117, 119, 136)

INTER-OFFICE MEMORANDUM

TO George C. Davis, Jr.

DATE August 28, 1953

AT

FROM J. T. Putnam
AT

COPIES TO

F. M. Cashin
Harold Davidson
Palmer Ford
R. M. Olive

SUBJECT Monolith — Laramie

On Thursday, August 27th, I received a telephone call from Alan Johnson, Assistant Superintendent of the Monolith Cement Company plant at Monolith. He advised me that he had recently returned from their plant at Laramie, Wyoming, and that his trip to Laramie was occasioned by assisting them in the replacement of a lining in their kiln.

They were greatly troubled since the lining that was replaced had only given them two-and-a-half months of service. Previous linings have gone as long as nine months. Alan arrived before the old lining had been removed from the kiln and found that, of the 35-foot hot zone, the first ten feet still appeared to be satisfactory with seven inches of brick remaining. However, the balance of 25 feet, as he described it, was a complete mess. There were longitudinal cracks running through the lining, the lining had spalled considerably, and it had, in many places, shrunk from the shell.

The reason for this premature failure, as interpreted by them, hinges around the fact that on installation they used cardboard spacers within the rings. Several times, shortly after the kiln had been placed in operation following the installation, power failures were encountered and it was conjectured that, quite possibly pieces of coating or dust had penetrated down through the joints left by the cardboard between the bricks before they had completely expanded, thereby creating a condition conducive to spalling. It seems quite possible that such could be the case.

It, too, is quite possible that an extreme fluxing condition could have been encountered due to a high alkali mix. It would be well to get samples of brick which have been taken from the kiln for further study.

In the use of our Periclase Chrome "A" unburned brick, as supplied on our Job No. 633-R and shipped to Laramie approximately on June 26, 1953, they discovered that the $3\frac{1}{2}$ " dimension of the $9 \times 6 \times (3\frac{1}{2} - 3-1/32)$ wedge varied. On checking the brick they found that this $3\frac{1}{2}$ " dimension varied from $3-31/64$ to $3-15/32$. Since the $3\frac{1}{2}$ " dimension fits into the kiln against the shell, this variance in dimension necessitated the use of an excessive amount of double steel shims in order to keep the installation correct. They estimate that they used in the neighborhood of 500 double steel shims over and above their normal usage. They request that because of our error, we replace the 500 shims to them at no cost. This I have agreed to do.

We are, on this date, in receipt of their purchase order covering two large carloads of brick for shipment to Laramie, and I am requesting Harold Davidson, by copy of this memorandum to add to this order 500 double steel shims on a "No Charge" basis.

The Plant Superintendent, Hank Anderson, according to Alan Johnson, is becoming concerned over the loss in production caused by the additional heat loss due to the increased thermal conductivity above a 70% alumina brick. He contends that he is losing between 100 and 200 barrels of clinker per day as a result of this heat loss. This is the first time that we have had heat loss interpreted in terms of lost production.

As a general rule it has been described in terms of increased fuel consumption. For this reason they are interested in the possibility of using an installation material behind the brick and have requested our advice.

A second approach to alleviating this heat loss condition was suggested by them. They feel that, quite possibly, a good proportion of the heat is transmitted from the hot face to the cold face by the steel shims used. They thought that, perhaps, this could be corrected by leaving two inches between the end of the steel shim and the shell. It is conceivable that this might help, but I, for one, cannot understand how they could install their brick correctly with this gap at the back end of the brick. I can visualize all sorts of things going wrong. Any expression of how to correct or assist in the correction of this particular problem will be appreciated.

Alan Johnson reports that both Hank Anderson, Superintendent, and Dunc Williams, Assistant Superintendent, are presently in a very disturbed state of mind concerning our product and basic brick in general; and it is Alan's suggestion that we make a visit to their plant at our earliest possible convenience. Therefore, it is suggested that Pete plan this trip in the very near future. If convenient, I would like to accompany Pete. This account is one of extreme value to us as their purchases amount to approximately 550 tons of brick per year.

JTP:gk

INTER-OFFICE MEMORANDUM

TO J. T. Putnam
AT Oakland

DATE September 10, 1953

FROM George C. Davie, Jr.
AT Oakland

COPIES TO R. M. Olive
P. B. Ford

SUBJECT Monolith - Laramie

I refer to your complaint report of August 28th. It is unfortunate that I did not grab this ball soon enough, with the result that through other channels incorrect information reached the plant as regards to the incorrect size on Job 633-R.

As you now know, the plant was of the impression that the hot face was too small so that they paid particular attention to this dimension on the two cars which were recently shipped. After talking to Don Bussey yesterday however, I feel we will be unusually unlucky if these don't turn out to be pretty accurately sized brick.

With regards to the rest of the complaint, I see very little that can be done until you and Pete get up there to discuss the matter in detail with the operators. Offhand, it's a little hard to understand how the use of radial cardboards and the power failures could explain the short life since they told you that approximately 10' of the brick were still in good shape. At least it would appear that there was a variation in the method of installation between one part of the hot zone and the other.

One thought is, if it was they who mentioned the possibility of high alkali mix, that probably was a contributing factor. We would certainly be glad to check some of the used brick, however the chances are pretty strong that we won't learn much. Unless they were terribly loaded with alkalis we wouldn't be able to form any opinion without a yardstick in the form of other used brick which had been in some other one of their kilns for only 2-1/2 months. If any of the brick which were still 7" long are also available, we might really learn something by comparison between them and the brick that failed.

My off-the-cuff reaction to the matter as described in your memo is that there may be some connection between the excessive use of double plates, the use of circumferential expansion and the failure itself. Secondly, I've always feared that someone would get too many cardboards in the circumference. Certainly there is plenty of chance for error there, since it is not a cut and dried affair such as placing one cardboard thickness between each and every circle. We should be interested in knowing whether they left the circumferential cardboard exposed and counted them before they okayed the job.

With regard to the heat loss problem, this same question was recently raised in a different way by Cobu Portland Cement and we were forced to tell them that we would not recommend insulation. From what I can pick up here and there, the only solution is to get a darn good coating on the lining and keep it during its entire life.

The idea of using a space between the cold end of the steel plate and the shell has been raised before. I believe this might be accomplished fairly simply by bending over a one or two inch tab on our regular plate for this job. If they would like to try it, we would furnish those special plates at no extra charge, for the experiment.

GCD, Jr/ox

REPRESENTATIVE'S REPORT

Representative P. B. Ford DATE March 3 1954

COMPANY Monolith Cement LOCATION Monolith, California

PERSONS CONTACTED (HOW TITLED) Dean Lowry, Asst. Supt.; Allen Johnson, Asst. Supt.; Gene Ledyard, Exec Chemist; Doug Kingsterry, M/M; Louis Brough, M/M; Joe hornberger, Asst. M/M.

A	PCA <input checked="" type="checkbox"/>	CPA	CD	PD	CPD		U.S.	<u>1</u>		B.	<u>1</u>		MC			84	165	105FF	10SD	102
O.	<input type="checkbox"/>	AL(OH)	<input type="checkbox"/>	ACT. AL	<input type="checkbox"/>	OTHERS														

Urgent Complaint ☐ Quote Request ☐ Order Instructions ☐ Mailing List ☐ Order Coming ☐

Present kiln status follows:

#1 35' PCA unburned hot zone has been in operation since 10/31/53.

#2 went into operation 10/29/53 and was shut down 2/23/54 for a 26' burning zone relining. This is the shortest campaign for some time and gave only 3 months 24 days of service. The kiln was down only twice for other repairs during this run and no reason for short service is evident.

#3 was started 8/20/53 and taken off the line for hot zone repairs on 2/6/54, a campaign of 5 months 16 days. It was fired again with a PCA U/B lining 2/13/54.

#4 was installed 10/22/53 with a 26' PCA U/B hot zone and is due for replacement any time now. A requisition is in the mill for the brick requirements.

#5 The PCA burned 30' hot zone is holding coating well and appears to be satisfactory after 3 months service.

Johnson said that the short steel shin installation at Monolith, Laramie, appears to have increased clinker production 100 bbls. per day. Ledyard plans to go over there next week and will bring back the complete story. Gene also plans to attend a PCA meeting in Chicago this month. He states that Harbison-walker has really been pushing him for a Magnecon installation at Monolith. He is awaiting the outcome on our burned trial in #5 before making any decisions. It will be recalled that we were afraid of this unfortunate occurrence when trying to sell them the original burned lining. Otherwise everyone is on our bandwagon and very happy.

Appendix, Part 11 (see Brief, p. 116)

Jones v. Ulrich (Ill.App.ct. 1950) 342 Ill.App. 16, 95 N.E.2d 113, 87 USPQ 331.

“Defendant next contends that the complaint fails to allege the existence of a trade secret or process and further contends that without such an allegation the complaint fails. Defendant Ulrich points out that paragraphs 4 and 5 of the complaint, quoted above, alleged that defendant constructed a phosphate spreader ‘embodying plaintiff’s ideas,’ and that there is no allegation that plaintiff furnished any plans, designs, specifications or models which would give rise to the existence of a trade secret or process.

“Assuming arguendo that the absence of such an allegation would be fatal to the statement of a cause of action, the allegation of disclosure of ‘the details’ of the spreader in paragraph 4 of the complaint makes it reasonably inferable that the plaintiff’s idea was not a mere theory, but was concrete to the point where it was entitled to protection by a court of equity. We note that plaintiff’s idea was specific to an extent that the following day plaintiff was able to direct the defendant in the manner of constructing the tangible device. Plaintiff did not merely have in mind an idea, but it is fairly inferable that he had in mind a specific device which needed only his directions and the defendant’s mechanical skill to reduce it to material form within twenty-four hours.”

* * * *

“Although the idea to be protected must be concrete to a degree, there appears no requirement that it must be tangible and in a material form to entitle it to the protection of a court of equity. The principal value is in the inventive idea when clearly

defined, as it is fairly inferable that the alleged idea was defined at the time of disclosure, and it would seem arbitrary to protect the inventor against a breach of confidence only when he can immediately exhibit a material thing demonstrating his invention." [Emphasis added.]

Appendix, Part 12 (see Brief, p. 117)

Preparation For The Laramie Lining

Palmer Ford, a Kaiser brick salesman, was informed of Monolith's short shimming disclosure and believed that short shimming was an interesting sales gimmick (Tr. 9889-90). Ford acknowledged discussions with Anderson and Oberg in late 1953 and early 1954, and at a meeting with Oberg in early 1954 he recalled Oberg drawing "ears" to support an arcuate shin to keep it off the kiln shell (Tr. 9856). In his representative report of January 15, 1954 (Ex. 112/DK), Ford suggested that Kaiser should advise Monolith what Kaiser's thoughts were on the use of such short arcuate shims; however, Kaiser did not so advise Monolith (Tr. 1474). On January 22, 1954, Ford did advise Anderson, "Your ideas are certainly both logical and revolutionary." (Ex. 113/DI).

Kaiser Knowledge Of Increased Production Due To Short Shimming In The Laramie Experimental Lining

In January of 1954, a 22 foot section of the Laramie kiln burning zone was relined with Kaiser basic brick, and short shims of the arcuate type were hung on the hot face of the brick (Finding of Fact No. 26, R. 3714; Tr. 1182-86; Tr. 1448-49; Tr. 1485-86; Tr. 1518). This short-shimmed lining resulted in an apparent increase of 100 barrels per day in production and increased lining life (Tr. 5221-26; Ex. 1062).

Johnson disclosed to Ford of Kaiser in the spring of 1954 that the experimental installation appeared to increase production by 100 barrels per day (Tr. 1007) and this information was relayed in Ford's Call Report (Ex. 114/DM, Appendix, Part 10) quoted above. John Breault who worked at appellant's Monolith, California

cement plant testified that Ford told him about the basic brick and short arcuate shim installation in the burning zone at Laramie in March or April of 1954 (Tr. 1562-64).

Monolith Purchase Of Short Shims From Kaiser

On several occasions, Kaiser was provided with information concerning the configuration of the arcuate short shim embodiment to enable Kaiser to quote a price for fabricating the same for Monolith. Thus, Pete Olive of Kaiser noted in his May 4, 1954 report (Ex. 117/DP) that Monolith wanted a quotation from Kaiser on steel shims only seven inches wide so that they would be sure not to touch the kiln shell (Ex. 117/DP). Reinking of Kaiser responded to Olive on May 13, 1954 (Ex. 118/DQ), and on May 19, Kaiser sent a quotation for arcuate short shims to Monolith (Ex. 120/DT). Monolith ordered arcuate short shims from Kaiser (Ex. 126/DY, Ex. 132, Stipulation of Facts No. 1, R. 827-829 and attached exhibits, admitted R. 5444 [Ex. 7 thereof]).

After the successful field test of the short-shimmed lining at Laramie, Johnson in November, 1954 requested Ford to quote on arcuate short shims for the Monolith, California plant (Tr. 1033-1034). Ford, in his November, 1954 report (Ex. 141/EP) also noted that a similar lining was to be tried at the Monolith, California plant and requested a quote on arcuate shims for Monolith, and in December, 1954 passed on to Kaiser personnel further details of the configuration desired by Monolith (Ex. 145/ET). Reinking of Kaiser in his memo of November 30, 1954 (Ex. 144; see also Ford's request for quote, Ex. 145/ET) requested L. Kilough of Kaiser to advise of the cost of making a shim in accordance with Ford's request, and also suggested that Kaiser quote on a "L" plate (i.e., longitudinal shim) short of the cold face of the brick. This clearly indicates that Kaiser was

aware that the concept of spacing the shim from the shell was the basic common denominator of longitudinal and arcuate short shims. Monolith ordered arcuate short shims from Kaiser in March, 1955 (Stipulation of Facts No. 1, R. 827-829 and attached exhibits, admitted Tr. 5444 [Ex. 5 thereof]).

Kaiser's Appropriation of the Monolith Disclosure for its Own Purposes and Advantage Establishes the Disclosure as Concrete

We have shown that the concept of and means for carrying out short shimming to increase production was disclosed to Kaiser in a concrete and understandable form by Monolith and that such disclosure was comprehended by Kaiser. This is obvious since the test of the completeness and concreteness of a disclosure is whether the discloser is able to practice the subject matter disclosed to him. If the disclosure enables the discloser to reduce the information to tangible form, there can be no doubt that a complete and concrete disclosure was made.

Here, Kaiser was quick to appropriate the Monolith disclosure to its own advantage by persuading its customers to field test linings employing short-shimmed brick which Kaiser manufactured without difficulty and offered for sale. Shortly after Monolith had observed the benefits of short shimming in its early 1954 Laramie lining and disclosed them to Ford of Kaiser (Ex. DM-114), he described the use of short shims to John Sauer of Riverside Cement Company and before February of 1955, a lining consisting in part of short-shimmed brick was installed at the Riverside Oro Grande plant (Finding of Fact No. 54, R. 3722) for field test, i.e., experimental, purposes. Later, in 1955, Kaiser made other sales to Riverside Cement Co. and Southwestern Port-

land Cement Co. of conventional basic brick using short shims (Findings of Fact Nos. 56 and 57, R. 3722) for field test purposes. Kaiser's activity in the field of short shimming immediately after the disclosure of the successful experimental installation by Monolith confirms that Monolith's original disclosure was understood clearly enough by Kaiser personnel so that they could put it into tangible form for the purpose of field testing by Kaiser's customers.

The Evidence Establishes That The Monolith Disclosure Had Value

The trial court itself found evidence of the value of cement kiln linings using short shimming in the fact that the "UNITAB" brick, which used short shims, was a commercial success (Finding of Fact No. 52, R. 3721), although it indicated that the commercial success of "UNITAB" brick derived more from its unitary character than from its use of a short shim. Thus, this finding indicates that the short shim *did* contribute to the commercial success of the brick and supports appellant's contention that the commercial success of the "UNITAB" short shim brick establishes the value of short-shimmed linings, and it must be kept in mind that we are here concerned only with *whether* the short shimming concept had value, not with how much.

Additionally, Kaiser's advertisements indicate that short shimming has value and increases kiln efficiency. Exhibit 73, a Kaiser advertisement entitled "Kaiser Unitab Kiln Liners" states:

"Half-inch gap between end of shim and shell acts as heat buffer to reduce shell temperature for greater kiln efficiency".

Thus, Kaiser acknowledged and even championed the principle that linings employing short shimming result

in greater kiln efficiency. Monolith has the same belief; only the lower court has a different view. The court attempted to explain away the Kaiser advertisement in its memo of decision (p. 118, R. 3677) as follows:

“Kaiser’s advertisements claimed increased kiln efficiency. In terms of reduced cost of clinker, reduced labor costs alone would sustain the advertisement. In terms of longer lining life, in the long run the insurance against faulty installation would be sure to produce a better lining which would last longer. Lasting longer, taking less time for installation, would both contribute to an increase in production. Kaiser’s claims for its product may be justified without reference to a noticeable increase in daily production and they do not constitute an admission of the efficacy of spacing the shims from the shell in terms of plaintiff’s claimed disclosures.”

The difficulty with the court’s explanation is that it does not go to the increased kiln efficiency asserted in the advertisement. Efficiency does not increase because of reduced labor cost longer lining life since the first involves only pre-operation expense and the second length of operation rather than effectiveness of operation. Rather, we must look for a factor involving an operating condition of the kiln and the advertisement itself tells us what the increased efficiency results from when it refers to the heat buffer effect of the short shim. Thus, the court’s attempt to explain out of existence Kaiser’s own statements of the value of short-shimmed linings is entirely without effect because it simply misses the point. For the same reasons, there can be no doubt that the evidence establishes exactly that which the court required be proved (memo of decision, p. 111, R. 3670):

“The nature of the information claimed to have been confided is defined in the pretrial order at page

32. Briefly stated, it is: That if the shims used between basic bricks in the ring are suspended on the hot face of the brick so that a space is left between the shim and the shell, a more efficient and more durable kiln and kiln lining will result. Pursuing the thread of analysis commenced above, plaintiff must prove that this is so."

"Nor is it an adequate answer for defendant to say that the transactions with plaintiffs were at arms length. So, too, were the overall dealings between plaintiffs and defendants in *Booth v. Stults Motor Car Co.*, 7 Cir., 56 F.2d 962; *Allen-Qualley Co. v. Shellmar Products Co.*, D. C., 31 F.2d 293, affirmed, 7 Cir., 36 F.2d 623 and *Schavoir v. American Rebonded Leather Co.*, 104 Conn. 472, 133 A. 582. The fact does not detract from the conclusion that but for those very transactions defendant would not have learned, from plaintiffs, of the container design. The implied limitation on the use to be made of the information had its roots in the 'arms-length' transaction."

"Where, as here, the parties are a seller and a prospective purchaser, certain disclosures will usually be made about the thing which is for sale so that the purchaser may rationally assess the merits of concluding the bargain. If the information disclosed is of such a nature as to otherwise qualify as a trade secret, we think the prospective buyer is bound to receive the information in confidence. *Speedry Chemical Prods., Inc. v. Carter's Ink Co.*, supra; *Smith v. Dravo Corp.*, 203 F.2d 369 (7 Cir. 1953); *Schreyer v. Casco Prods. Corp.*, 190 F.2d 921 (2 Cir. 1951), cert. denied, 342 U.S. 913, 72 S.Ct. 360, 96 L.Ed. 683 (1952); *Hoeltke v. C. M. Kemp Mfg. Co.*, 80 F.2d 912 (4 Cir. 1935). As the pros-

pective buyer is given the information for the limited purpose of aiding him in deciding whether to buy, he is bound to receive the information for use within the ambit of this limitation. He may not in good conscience accept the information; terminate negotiations for the sale; and then, using vital data secured from the would-be seller, set out on a venture of his own. *Whatever conduct courts should countenance when parties bargain at arm's length, we think parties should be expected to comply with these essentials of fair dealing.*" (Emphasis added)

Appendix, Part 13 (see Brief, p. 124)

Smith v. Dravo Corp., (7 Cir. 1953) 203 F.2d 369, at 376-77:

“Nor is it an adequate answer for defendant to say that the transactions with plaintiffs were at arms length. So, too, were the overall dealings between plaintiffs and defendants in *Booth v. Stults Motor Car Co.*, 7 Cir., 56 F.2d 962; *Allen-Qualley Co. v. Shellmar Products Co.*, D. C., 31 F.2d 293, affirmed, 7 Cir., 36 F.2d 623 and *Schavoir v. American Rebonded Leather Co.*, 104 Conn. 472, 133 A. 582. The fact does not detract from the conclusion that but for those very transactions defendant would not have learned, from plaintiffs, of the container design. The implied limitation on the use to be made of the information had its roots in the ‘arms-length’ transaction.”

Appendix, Part 14 (see Brief, p. 124)

Heyman v. Ar. Winarick, Inc., (2 Cir. 1963) 325 F.2d 584, at 587:

“Where, as here, the parties are a seller and a prospective purchaser, certain disclosures will usually be made about the thing which is for sale so that the purchaser may rationally assess the merits of concluding the bargain. If the information disclosed is of such a nature as to otherwise qualify as a trade secret, we think the prospective buyer is bound to receive the information in confidence. *Speedry Chemical Prods., Inc. v. Carter’s Ink Co.*, supra; *Smith v. Dravo Corp.*, 203 F.2d 369 (7 Cir. 1953); *Schreyer v. Casco Prods. Corp.*, 190 F.2d 921 (2 Cir. 1951), cert. denied, 342 U.S. 913, 72 S.Ct. 360, 96 L.Ed. 683 (1952); *Hoeltke v. C. M. Kemp Mfg. Co.*, 80 F.2d 912 (4 Cir. 1935). As the prospective buyer is given the information for the limited purpose of aiding him in deciding whether to buy, he is bound to receive the information for use within the ambit of this limitation. He may not in good conscience accept the information; terminate negotiations for the sale; and then, using vital data secured from the would-be seller, set out on a venture of his own. *Whatever conduct courts should countenance when parties bargain at arm’s length, we think parties should be expected to comply with these essentials of fair dealing.*” (Emphasis added)

Appendix, Part 15 (see Brief, p. 126)

Micek v. Radiator Specialty Co., (S.D. Cal. (1961) 135 USPQ 220, at 222-23:

“I should also like to further quote the late Associate Justice Latourette, then Chief Justice, from *McKinzie*, *supra*, pp. 195-6, 96 USPQ at 360:

‘If our system of private enterprise on which our nation has thrived, prospered and grown great is to survive, fair dealing, honesty and good faith between (mutually negotiating) parties must be zealously maintained; therefore, if one who has learned of another’s invention through (good-faith negotiation for) contractual relationship, such as in the present case, takes unconscionable and inequitable advantage of the other to his own enrichment and at the expense of the latter, a court of equity will extend its broad powers to protect the party injured. This is in consonance with the rule enunciated in *Consolidated Boiler Corp. v. Bogue Electric Co.*, 141 N.J.Eq. 550, 58 A.2d 759, 77 USPQ 483, and *Pidot v. Zenith Radio Corp.*, 308 Ill App 197, 31 N.E.2d 385, which in our opinion, are premised on logic and clear reasoning.’ ”

Appendix, Part 16 (see Brief, p. 126)

Kamin v. Kuhnuu, (Ore. S. Ct. 1962) 232 Or. 139, 374 P.2d 912, 135 USPQ 133, at 137:

“However, we favor the principle expressed in *Smith v. Dravo*, which provides a more extended protection to the person disclosing information in confidence. The choice of these views will be governed by one’s opinion as to the appropriate standard of commercial morality. The cases reflect the varying views as to where the standard should be set. It has been noted that the ‘tendency of the law, both legislative and common, has been in the direction of enforcing increasingly higher standards of fairness or commercial morality in trade.’ 3 Restatement, Torts, Introductory Note to ch. 35, p. 540. The cases adopting the higher standard of ‘commercial morality’ emphasize the breach of the confidence reposed in the defendant, rather than the existence of the trade secret. As the court stated in *Vulcan Detinning Co. v. American Can Co.*, 72 N.J.Eq. 387, 67 A. 339, 343 (1907) ‘too much emphasis has perhaps been placed upon the element of absolute secrecy in the process, and that not enough stress has been laid upon the inequitable character of the defendants’ conduct in making a use of such progress that was inimical to the complainant’s interests. * * * (T) he secrecy with which a court of equity deals is not necessarily that absolute secrecy that inheres in discovery, but that qualified secrecy that arises from mutual understanding, and that is required alike by good faith and by good morals.’ On similar grounds the element of novelty has been minimized, the emphasis being placed upon the unfairness to plaintiff if defendant is permitted to appropriate the plaintiff’s idea.”

Appendix, Part 17 (see Brief, p. 133)

Futurecraft Corp. v. Clary Corp. (Dist.Ct.App. 1962)
205 Cal.App.2d 279, 23 Cal.Rptr. 198:

“In discussing ‘Novelty and prior art’ Restatement of the Law, Torts, Volume 4, section 757, comment b, pp. 6-7, provides in part as follows:

‘*Novelty and prior art.* A trade secret may be a device or process which is patentable; but it need not be that. *It may be a device or process which is clearly anticipated in the prior art* or one which is merely a mechanical improvement that a good mechanic can make. Novelty and invention are not requisite for a trade secret as they are for patentability. These requirements are essential to patentability because a patent protects against unlicensed use of the patented device or process even by one who discovers it properly through independent research. The patent monopoly is a reward to the inventor. But such is not the case with a trade secret. Its protection is not based on a policy of rewarding or otherwise encouraging the development of secret processes or devices. *The protection is merely against breach of faith and reprehensible means of learning another’s secret. For this limited protection it is not appropriate to require also the kind of novelty and invention which is a requisite of patentability.*’ (Emphasis added.)

“Absent a situation where the device or process is so widely known as to be within the public domain, it is clear that prior art will not be a defense *where there is a breach of confidence.*”

Appendix, Part 18 (see Brief, p. 134)

Grepke v. General Electric Co., (7 Cir. 1960) 280 F.2d 508, at 512:

"If, as the jury evidently believed from the evidence, defendant in 1940 solicited and obtained in confidence plaintiff's idea and in 1953 Pugh appropriated that idea for defendant's benefit, we consider irrelevant the alleged fact that in 1954, or even before then, from sources other than plaintiff, a similar method had been adopted in the industry. Certainly defendant does not contend that Pugh resorted to general knowledge in the industry in reaching the result which he claimed to have achieved in 1953.

"In *Smith v. Dravo Corp.*, 203 F.2d 369, 375, we said, quoting from *Nims, Unfair Competition and Trade Marks*, sec. 148:

"The fact that a trade secret is of such a nature that it can be discovered by experimentation or other fair and lawful means does not deprive its owner of the right to protection from those who would secure possession of it by unfair means.'"

Appendix, Part 19 (see Brief, p. 134)

A. O. Smith Corp. v. Petroleum Iron Works Co., (6 Cir. 1934) 73 F.2d 531, at 538-539:

“The mere fact that the means by which a discovery is made are obvious, that experimentation which leads from known factors to an ascertainable but presently unknown result may be simple, we think cannot destroy the value of the discovery to one who makes it, or advantage the competitor who by unfair means, or as the beneficiary of a broken faith, obtains the desired knowledge without himself paying the price in labor, money, or machines expended by the discoverer. Facts of great value may, like the lost purse upon the highway, lie long unnoticed upon the public commons. Hundreds pass them by, till one more observant than the rest makes discovery. It is idle to say that, in the eyes of the law, interest may not in such case follow discernment. We think the court below was right in rejecting the master’s application of the law in respect to those secret processes held by the master to be invalid for the reason that they were in the public domain, or within the reach of the skilled mechanic in the trade.”

Appendix, Part 20 (see Brief, p. 135)

L. M. Rabinowitz & Co., Inc. v. Dasher, (N.Y.S.Ct. 1948) 78 USPQ 163, at 166:

“The court will not speculate on whether Dasher or the other defendants might have waded through the ‘prior art’ and perhaps might have acquired enough information to be able to construct imitations of plaintiff’s machines. It is easy for the defendants’ experts to point to various parts of plaintiff’s machines which may now be in the public domain, and having seen and examined the plaintiff’s machines, to state that they could have been constructed by a skilled mechanic who knew the ‘prior art.’ The fact remains that until Dasher copied the plaintiff’s machines, no one else had constructed one which was nearly as good as the plaintiff’s.”

Appendix, Part 21 (see Brief, p. 135)

Trenton Industries v. A. E. Peterson Mfg. Co., (S.D. Cal. 1958) 165 F.Supp. 523, at 532:

“The facts of this case bring the situation that confronts the court in the second count within these principles. The defendant, however, explained that after he received and examined the plaintiff’s chair he happened to be in his church one time and saw that the chairs that were used in the church had a similar folding mechanism, or so he thought, as is found in the plaintiff’s structure, and consequently he felt free to use that structure because his theory was that it was then in the public domain. It is significant, however, that he had seen these church chairs on numerous prior occasions, but he did not take any particular notice of them and did not derive the thought that it was possible to use a similar mechanism in manufacturing a high chair, until he received and scrutinized the plaintiff’s disclosure. It would seem, therefore, to the court that he was using this other structure, which has been denominated throughout the case as the church chair, as an afterthought and as an excuse for using the idea that was communicated to him by the plaintiff through an intermediary.”

Appendix, Part 22 (see Brief, p. 138)

Booth v. Stutz Motor Car Co. of America, (7 Cir. 1932)
56 F.2d 962, at 968:

“With this knowledge of the Booth designs, and with the purpose of producing a car which proved to be generally similar in design, is it at all likely that Chief Engineer Crawford entirely banished from his mind the Booth plans, specifications, designs, and drawings, which only a short time before he had so intimately examined, and in such detail had approvingly reported upon? If Crawford’s denial be accepted, and he be absolved from any purposeful appropriation for Stutz of any part of the Booth designs or plans, the influence of the Booth designs upon the new Stutz car *must have been the result of Crawford’s ‘unconscious assimilation’ of them, which, however wanting in intent, none the less constituted an appropriation of the Booth designs so far as their novel features entered into the new Stutz car, involving none the less a breach of the trust and confidence under which Booth’s plans and designs were turned over to Stutz.*

“True, the Booth blueprints and designs were not literally copied in their every detail. There were many departures, more or less substantial. But salient features mentioned in Crawford’s report were undoubtedly incorporated in the Stutz car.” [Emphasis added.]

* * * *

“To the extent, therefore, that the Booth plans, communicated in confidence to Stutz, did enter into the design of the Stutz car, Stutz did inequitably appropriate those plans, and should account to Booth therefor.”

Appendix, Part 23 (see Brief, p. 139)

Mycalex Corp. v. Pemco Corp., (D.Md. 1946) 64
F.Supp. 420, at 425:

“Of course we take full account of the fact that in determining the question of liability for disclosure or use of another’s trade secret, according to the principles of law which we have hereinbefore stated, there is no requirement to prove, in order to impose liability, that the alleged offender use such trade secret in precisely the form in which it was disclosed to him. He may be liable even though he use it with various modifications or improvements, as a result of his own efforts.”

Appendix, Part 24 (see Brief, p. 141)

Underwater Storage, Inc. v. United States Rubber Co., (D.C. Cir. 1966) 371 F.2d 950, at 955:

“ . . . It is the continuing use of another’s secret, wrongfully obtained, or used after knowledge that it has been wrongfully obtained, that makes the tort a continuing one. Once the secret is out, the rest of the world may well have a right to copy it at will; but this should not protect the misappropriator or his privies. Their gain is ill-gotten and the passage of time or publication to the rest of the world should not serve to cleanse their hands. See *International News Serv. v. Associated Press*, 248 U.S. 215, 239, 39 S.Ct. 68, 63 L.Ed. 211 (1918).

“Appellant has cited in support of its argument numerous cases from other areas of law holding in general that the statute of limitations begins to run anew with each new invasion of a subsisting right of another. It would serve no purpose for us to specifically analyze these cases in detail here-- suffice it to say that we agree with appellant that, with respect to their specific subject areas of the law, they stand for the proposition that a cause of action for each invasion of the plaintiff’s interest arose at the time of that invasion and that the applicable statute of limitations ran from that time and not from the time of the first invasion. These cases provide strong analogical support for the rule argued for in the instant case by appellant and appellee has not persuaded us to the contrary.

“Finally, we have examined the competing policy considerations urged by the parties and have concluded that the balance must be struck in favor of those argued for by appellant. We believe the rule

should be that in trade secret cases where the secret has been misappropriated the wrongdoer and his privies are amenable to suit for any use of the secret so long as the use has occurred within the statutory period of limitations immediately preceding the bringing of the action."

Appendix, Part 25 (see Brief, p. 141)

A cause of action has been held to accrue from day to day with the applicable statute of limitations running from each invasion in anti-trust action, *Foster & Kleiser Co. v. Special Site Sign Co.*, (9 Cir. 1936) 85 F.2d 742, 751; *Momand v. Universal Film Exchanges*, (1 Cir. 1948) 172 F.2d 37, 49; *Williamson v. Columbia Gas & Elec. Corp.*, (3 Cir. 1950) 186 F.2d 464, 469; *Highland Supply Corp. v. Reynolds Metals Company*, (8 Cir. 1964) 327 F.2d 725, 732; *Charles Rubenstein, Inc. v. Columbia Pictures Corp.*, (D.Minn. 1957) 154 F.Supp. 216, 219; *Delta Theaters v. Paramount Pictures, Inc.*, (E.D.La. 1959) 158 F.Supp. 644, 649; *Radio Corporation of America v. Rauland Corp.*, (N.D.Ill. 1956) 186 F.Supp. 704, 707; *Highland Supply Corp. v. Reynolds Metals Company*, (E.D.Mo. 1965) 238 F.Supp. 561, 564, in continuing nuisance cases *Baltimore & P. R. Co. v. Fifth Baptist Church*, (1891) 137 U.S. 568, 577, 11 S.Ct. 185, 34 L.ed. 784; *Harrisonville v. W. S. Dickey Clay Mfg. Co.*, (1933) 289 US 334, 341, 53 S.Ct. 602, 77 L.ed. 1208, in trademark infringement cases, *Menendez v. Holt*, (1888) 128 US 514, 523, 9 S.Ct. 143, 32 L.ed. 526; *Midy v. Midy Laboratories, Inc.*, (S.Ct. N.Y. 1948) 77 USPQ 429, 431, and in personal injury cases, *Pieczonka v. Pullman Company*, (2 Cir. 1937) 89 F.2d 353, 356; *Daniels v. Beryllium Corp.*, (E.D. Pa. 1962) 211 F.Supp. 452, 456.

